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(54) Title: FLEA HEAD, NERVE CORD, HINDGUT AND MALPIGHIAN TUBULE NUCLEIC ACID MOLECULES, PROTEINS AND USES THEREOF			
(57) Abstract <p>The present invention relates to flea head, nerve cord, hindgut and malpighian tubule proteins; to flea head, nerve cord, hindgut and Malpighian tubule nucleic acid molecules, including those that encode such flea head, nerve cord, hindgut and Malpighian tubule proteins; to antibodies raised against such flea head, nerve cord, hindgut and Malpighian tubule proteins; and to compounds that inhibit flea head, nerve cord, hindgut and Malpighian tubule protein activity. The present invention also includes methods to obtain such proteins, nucleic acid molecules, antibodies, and inhibitory compounds. Also included in the present invention are therapeutic compositions comprising proteins, nucleic acid molecules, or protective compounds derived from proteins of the present invention as well as the use of such therapeutic compositions to protect animals from flea infestation. Also included in the present invention is the use of flea head, nerve cord, hindgut and Malpighian tubule proteins to derive inhibitory compounds.</p>			

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FLEA HEAD, NERVE CORD, HINDGUT AND MALPIGHIAN TUBULE NUCLEIC ACID MOLECULES, PROTEINS AND USES THEREOF

FIELD OF THE INVENTION

The present invention relates to nucleic acid molecules isolated from the head
5 and nerve cord of a flea, nucleic acid molecules isolated from the hindgut and
Malpighian tubule of a flea, proteins encoded by such nucleic acid molecules, antibodies
raised against such proteins, and inhibitors of such proteins. The present invention also
includes therapeutic compositions comprising such nucleic acid molecules, proteins,
antibodies, and/or other inhibitors, as well as uses thereof.

10 BACKGROUND OF THE INVENTION

Flea infestation of animals is a health and economic concern because fleas are
known to cause and/or transmit a variety of diseases. Fleas directly cause a variety of
diseases, including allergies, and also carry a variety of infectious agents including, but
not limited to, endoparasites (e.g., nematodes, cestodes, trematodes and protozoa),
15 bacteria and viruses. In particular, the bites of fleas are a problem for animals
maintained as pets because the infestation becomes a source of annoyance not only for
the pet but also for the pet owner who may find his or her home generally contaminated
with insects. As such, fleas are a problem not only when they are on an animal but also
when they are in the general environment of the animal.

20 Bites from fleas are a particular problem because they not only can lead to
disease transmission but also can cause a hypersensitive response in animals which is
manifested as disease. For example, bites from fleas can cause an allergic disease called
flea allergic (or allergy) dermatitis (FAD). A hypersensitive response in animals
typically results in localized tissue inflammation and damage, causing substantial
25 discomfort to the animal.

The medical importance of flea infestation has prompted the development of
reagents capable of controlling flea infestation. Commonly encountered methods to
control flea infestation are generally focused on use of insecticides. While some of these
products are efficacious, most, at best, offer protection of a very limited duration.
30 Furthermore, many of the methods are often not successful in reducing flea populations.
In particular, insecticides have been used to prevent flea infestation of animals by adding

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such insecticides to shampoos, powders, collars, sprays, spot-on formulations foggers and liquid bath treatments (i.e., dips). Reduction of flea infestation on the pet has been unsuccessful for one or more of the following reasons: failure of owner compliance (frequent administration is required); behavioral or physiological intolerance of the pet
5 to the pesticide product or means of administration; and the emergence of flea populations resistant to the prescribed dose of pesticide.

Thus, there remains a need to develop a reagent and a method to protect animals from flea infestation.

SUMMARY OF THE INVENTION

10 The present invention relates to a novel product and process for protection of animals from flea infestation.

The present invention provides flea head and nerve cord (HNC) proteins and flea hindgut and Malpighian tubule (HMT) proteins; nucleic acid molecules encoding flea HNC proteins and flea HMT proteins; antibodies raised against such proteins (i.e., anti-
15 flea HNC antibodies and anti-flea HMT antibodies respectively); mimetopes of such proteins or antibodies; and compounds that inhibit flea HNC or HMT activity (i.e., inhibitory compounds or inhibitors).

The present invention also includes methods to obtain such proteins, mimetopes, nucleic acid molecules, antibodies and inhibitory compounds. The present invention
20 also includes the use of proteins and antibodies to identify such inhibitory compounds as well as assay kits to identify such inhibitory compounds. Also included in the present invention are therapeutic compositions comprising proteins, mimetopes, nucleic acid molecules, antibodies and inhibitory compounds of the present invention including protective compounds derived from a protein of the present invention that inhibit the
25 activity of HNC and/or HMT proteins; also included are uses of such therapeutic compounds to reduce flea infestation.

One embodiment of the present invention is an isolated nucleic acid molecule that hybridizes with a nucleic acid sequence having SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:12,
30 SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:34, SEQ ID

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NO:36, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:153, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:161, SEQ ID NO:162, SEQ ID NO:164, SEQ ID NO:165, SEQ ID NO:167, SEQ ID NO:168, SEQ ID NO:170, SEQ ID NO:1859, SEQ ID NO:1860, SEQ ID NO:1861, SEQ ID NO:1863, SEQ ID NO:1864, SEQ ID NO:1866, SEQ ID NO:1867, SEQ ID NO:1869, SEQ ID NO:1870, SEQ ID NO:1871, SEQ ID NO:1872, SEQ ID NO:1874, SEQ ID NO:1875, SEQ ID NO:1876, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1880, SEQ ID NO:1881, SEQ ID NO:1882, SEQ ID NO:1884, SEQ ID NO:1885, SEQ ID NO:1886, SEQ ID NO:1887, SEQ ID NO:1889, SEQ ID NO:1890, SEQ ID NO:1891, SEQ ID NO:1892, SEQ ID NO:1893, SEQ ID NO:1894, SEQ ID NO:1895, SEQ ID NO:1896, SEQ ID NO:1898, SEQ ID NO:1899, SEQ ID NO:1900, SEQ ID NO:1901, SEQ ID NO:1903, SEQ ID NO:1904, SEQ ID NO:1905, SEQ ID NO:1906, SEQ ID NO:1907, SEQ ID NO:1908, SEQ ID NO:1909, SEQ ID NO:1910, SEQ ID NO:1911, SEQ ID NO:1912, SEQ ID NO:1913, SEQ ID NO:1914, SEQ ID NO:1916, SEQ ID NO:1917, SEQ ID NO:1918, SEQ ID NO:1919, SEQ ID NO:1921, SEQ ID NO:1922, SEQ ID NO:1923, SEQ ID NO:1924, SEQ ID NO:1926, SEQ ID NO:1927, SEQ ID NO:1928, SEQ ID NO:1929, and/or SEQ ID NO:1931 under conditions that allow less than or equal to about 30% base pair mismatch. Another embodiment of the present invention is an isolated nucleic acid molecule that hybridizes with a nucleic acid molecule selected from the group consisting of a nucleic acid sequence of Table I, Table II, Table III and/or Table IV, or a nucleic acid sequence complementary to a nucleic acid sequence of Table I, Table II, Table III and/or Table IV under conditions that allow less than or equal to about 30% base pair mismatch.

Another embodiment of the present invention is an isolated nucleic acid molecule having nucleic acid sequence that is at least about 70% identical to SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:39, SEQ ID

NO:40, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:153, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:161, SEQ ID NO:162, SEQ ID NO:164, SEQ ID NO:165, SEQ ID NO:167, SEQ ID NO:168, SEQ ID NO:170, SEQ ID NO:1859, SEQ ID NO:1860, SEQ ID NO:1861, SEQ ID NO:1863, SEQ ID NO:1864, SEQ ID NO:1866, SEQ ID NO:1867, SEQ ID NO:1869, SEQ ID NO:1870, SEQ ID NO:1871, SEQ ID NO:1872, SEQ ID NO:1874, SEQ ID NO:1875, SEQ ID NO:1876, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1880, SEQ ID NO:1881, SEQ ID NO:1882, SEQ ID NO:1884, SEQ ID NO:1885, SEQ ID NO:1886, SEQ ID NO:1887, SEQ ID NO:1889, SEQ ID NO:1890, SEQ ID NO:1891, SEQ ID NO:1892, SEQ ID NO:1893, SEQ ID NO:1894, SEQ ID NO:1895, SEQ ID NO:1896, SEQ ID NO:1898, SEQ ID NO:1899, SEQ ID NO:1900, SEQ ID NO:1901, SEQ ID NO:1903, SEQ ID NO:1904, SEQ ID NO:1905, SEQ ID NO:1906, SEQ ID NO:1907, SEQ ID NO:1908, SEQ ID NO:1909, SEQ ID NO:1910, SEQ ID NO:1911, SEQ ID NO:1912, SEQ ID NO:1913, SEQ ID NO:1914, SEQ ID NO:1916, SEQ ID NO:1917, SEQ ID NO:1918, SEQ ID NO:1919, SEQ ID NO:1921, SEQ ID NO:1922, SEQ ID NO:1923, SEQ ID NO:1924, SEQ ID NO:1926, SEQ ID NO:1927, SEQ ID NO:1928, SEQ ID NO:1929, and/or SEQ ID NO:1931 and/or a nucleic acid sequence of Table I, Table II, Table III and/or Table IV or complements thereof.

20 The present invention also relates to recombinant molecules, recombinant viruses and recombinant cells that include a nucleic acid molecule of the present invention. Also included are methods to produce such nucleic acid molecules, recombinant molecules, recombinant viruses and recombinant cells.

Another embodiment of the present invention includes an isolated flea HMT and/or HNC protein that is at least about 70% identical to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:20, SEQ ID NO:26, SEQ ID NO:32, SEQ ID NO:38, SEQ ID NO:44, SEQ ID NO:154, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873, SEQ ID NO:1879, SEQ ID NO:1883, SEQ ID NO:1888, SEQ ID NO:1897, SEQ ID NO:1902, SEQ ID NO:1915, SEQ ID NO:1920, SEQ ID NO:1925, and/or SEQ ID NO:1930, and/or an amino acid sequence encoded by

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a nucleic acid sequence of Table I, Table II, Table III and/or Table IV, and fragments thereof, wherein such fragments can elicit an immune response against respective flea proteins or have activity comparable to respective flea proteins.

Another embodiment of the present invention includes an isolated protein
 5 encoded by a nucleic acid molecule that hybridizes with the complement of a nucleic acid sequence having SEQ ID NO:1, SEQ ID NO:4, SEQ ID NO:7, SEQ ID NO:10, SEQ ID NO:13, SEQ ID NO:16, SEQ ID NO:19, SEQ ID NO:22, SEQ ID NO:25, SEQ ID NO:28, SEQ ID NO:31, SEQ ID NO:34, SEQ ID NO:37, SEQ ID NO:40, SEQ ID NO:43, SEQ ID NO:46, SEQ ID NO:153, SEQ ID NO:156, SEQ ID NO:159, SEQ ID
 10 NO:162, SEQ ID NO:165, SEQ ID NO:168, SEQ ID NO:1859, SEQ ID NO:1861, SEQ ID NO:1864, SEQ ID NO:1867, SEQ ID NO:1870, SEQ ID NO:1872, SEQ ID NO:1875, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1881, SEQ ID NO:1882, SEQ ID NO:1885, SEQ ID NO:1887, SEQ ID NO:1890, SEQ ID NO:1892, SEQ ID NO:1894, SEQ ID NO:1896, SEQ ID NO:1899, SEQ ID NO:1901, SEQ ID NO:1904,
 15 SEQ ID NO:1906, SEQ ID NO:1908, SEQ ID NO:1910, SEQ ID NO:1912, SEQ ID NO:1914, SEQ ID NO:1917, SEQ ID NO:1919, SEQ ID NO:1922, SEQ ID NO:1924, SEQ ID NO:1927, and/or SEQ ID NO:1929 and/or a nucleic acid sequence of Table I, Table II, Table III and/or Table IV, under conditions that allow less than or equal to about 30% base pair mismatch.

20 DETAILED DESCRIPTION OF THE INVENTION

The present invention provides for nucleic acid molecules isolated from the head and/or nerve cord of a flea, nucleic acid molecules isolated from the hindgut and/or Malpighian tubule of a flea, proteins encoded by such nucleic acid molecules, antibodies raised against such proteins, and inhibitors of such proteins. As used herein, nucleic
 25 acid molecules isolated from the head and/or nerve cord of a flea and proteins encoded by such nucleic acid molecules are also referred to as flea HNC, or HNC, nucleic acid molecules and proteins respectively; and nucleic molecules isolated from the hindgut and/or Malpighian tubules of a flea and proteins encoded by such nucleic acid molecules are referred to as flea HMT or HMT, nucleic acid molecules and proteins respectively.
 30 HNC nucleic acid molecules and HMT nucleic acid molecules of the present invention are nucleic acid molecules that are primarily expressed in flea HNC tissues and HMT

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tissues respectively, but which may be expressed in cells derived from flea tissues other than HNC and HMT. HNC and HMT nucleic acid molecules and proteins of the present invention can be isolated from a flea or prepared recombinantly or synthetically. HMT and HNC nucleic acid molecules of the present invention can be RNA or DNA;

5 examples of nucleic acid molecules include, but are not limited to, complementary DNA (cDNA) molecules, genomic DNA molecules, synthetic DNA molecules, DNA molecules which are specific tags for messenger RNA derived from HMT and HNC tissues, and corresponding mRNA molecules. As used herein, the phrases "HMT and/or HNC protein" and "HMT and HNC protein" refer to a protein expressed by a flea HMT
10 tissue, by a flea HNC tissue, or by both flea HMT and HNC tissues. As used herein, the phrases "HMT and/or HNC nucleic acid molecule" and "HMT and HNC nucleic acid molecule" refer to a nucleic acid molecule that can be isolated from a HMT cDNA library, from a HNC cDNA library, or from both libraries, or a gene corresponding thereto.

15 The present invention provides for nucleic acid molecules containing partial or full-length coding regions that encode one or more of the following flea proteins: an allantoinase (ALN) protein, a chitin-binding protein (CBP) protein, a sodium/potassium ATPase beta subunit (NKAB) protein, a ligand-gated chloride channel (LGIC) protein, an ANON/23DA (ANON) protein, a malvolio (MALV) protein, an odorant-binding
20 protein-like (OS-D) protein, a N-methyl-D-aspartate receptor associated (NMDA) protein, a chemical sense related lipophilic ligand binding protein-like (CLBP) protein, a Sodium/Hydrogen Transporter-like (NAH) protein, a Chloride Intracellular Channel-like (CLIC) protein, aPeritrophin-like (PL2) protein, aPeritrophin-like (PL3) protein, aPeritrophin-like (PL4) protein, a synaptic vesicle 2B-like (SVP) protein, a voltage-gated
25 Chloride-like (VGCC) protein, an anoxia upregulated protein-like (AUP) protein, and a neuroendocrine specific 7B2-like (7B2) protein. Such nucleic acid molecules are referred to as ALN nucleic acid molecules, CBP nucleic acid molecules, NKAB nucleic acid molecules, LGIC nucleic acid molecules, ANON nucleic acid molecules, MALV nucleic acid molecules, OS-D nucleic acid molecules, NMDA nucleic acid molecules,
30 CLBP nucleic acid molecules, NAH nucleic acid molecules, CLIC nucleic acid molecules, PL2 nucleic acid molecules, PL3 nucleic acid molecules, PL4 nucleic acid

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molecules, SVP nucleic acid molecules, VGCC nucleic acid molecules, AUP nucleic acid molecules, and 7B2 nucleic acid molecules respectively and are described herein in detail below.

5 Allantoinase is involved in the catalysis of the reaction converting allantoin to allantoic acid. This is a middle step in purine catabolism, which in insects results in the secretion of urea as the end product. The enzyme is located in the peroxisomes of the liver and kidney in amphibians. There is no known mammalian homologue to allantoinase, as mammals secrete uric acid, a precursor to allantoin. As such, flea allantoinase represents a novel target for anti-flea vaccines and chemotherapeutic drugs.

10 The function of chitin binding protein is largely unknown. A chitinase-like protein of *Bombyx mori* (GenBank accession # 1841851) is reported to have weak similarity with the chitin-binding domain of insect chitinases; however, it has no significant similarity to the catalytic regions of known chitinases, and therefore is not expected to have chitinase activity. The chitinase-like protein of *B. mori* is also similar
15 to the peritrophin family of proteins located in the peritrophic matrix of insects. These proteins contain putative chitin-binding domains but have no other apparent homology to any known proteins. Without being bound by theory, it is believed that these proteins bind chitin and are a structural component of the peritrophic matrix. As such, flea chitin binding protein represents a novel target for anti-flea vaccines and chemotherapeutic
20 drugs.

Na⁺/K⁺ATPase is involved in the hydrolysis of ATP to power the transport of Na⁺ out of and K⁺ into cells. It is responsible for establishing the Na⁺ gradient across plasma membranes, which is then used by cells for a number of functions including sugar and amino acid transport, diuresis and nerve cell signaling. The Na⁺/K⁺ ATPase
25 pump is a trimer of a 100-kilodalton (kDa) alpha (α) subunit, a 40-kDa beta (β) subunit, and a 6-kDa gamma (γ) subunit. Most insects express three isotypes of the β subunit, each being expressed in a tissue and cell-type dependent manner. The α subunit has 8 transmembrane domains whereas the β and γ subunits have just one. The α subunit mediates ATPase and ion transporting activities and together with the γ subunit
30 comprises the site for cardiac glycoside (ouabain) binding. The β subunit is required for detectable pump activity, and is thought to have roles in stability, localization, and

determining cation specificity. As such, a flea NKAB protein of the present invention represents a novel target for anti-flea vaccines and chemotherapeutic drugs.

Ligand-gated ion channel family proteins have been shown to transmit neural signals in response to binding neurotransmitters such as GABA, glycine, and glutamate.

5 GABA and glycine receptors transmit inhibitory signals whereas glutamate receptors transmit excitatory signals. This family of proteins is the target for many drugs affecting neural signaling, and also for several families of insecticides including cyclodienes, pyrethroids, and phenyl pyrazoles. Northern blot analysis indicates that the mRNA corresponding to a LGIC nucleic acid molecule of the present invention is only
10 expressed in HMT tissue, which suggests a role in the regulation or mediation of diuresis. Without being bound by theory, assuming protein expression correlates with the mRNA expression, flea LGIC may represent the first of this family of receptors shown to be exclusively expressed in renal tissue. Sequence analysis shows that a flea LGIC protein is distinct from other subfamilies of ligand-gated ion channels, and thus
15 may represent a new subfamily. As such, a flea LGIC protein of the present invention represents a novel target for anti-flea vaccines and chemotherapeutic drugs.

The function of ANON/23DA protein largely unknown. The ANON/23DA gene is reported to be linked to the MAD gene in *Drosophila*, though it is not known if ANON/23DA and MAD are functionally related. ANON/23DA may also have
20 functional similarity to human probable membrane receptor protein pHPS1-2, which is similar to rhodopsin/beta-adrenergic receptor which plays an important role in kidney function. As such, a flea ANON/23DA protein of the present invention represents a novel target for anti-flea vaccines and chemotherapeutic drugs.

Drosophila malvolio shows high sequence homology to mammalian natural
25 resistance associated proteins (NRAMPs) and to yeast Smf1, which are proteins that transport divalent cations, specifically Mn^{++} , Zn^{++} , and Fe^{++} . NRAMPs have also been shown be similar to ATPase transporters and use ATP as an energy source. There are two types of NRAMP proteins, NRAMP1 and NRAMP2. NRAMP1 is expressed exclusively on macrophages and is responsible for preventing intracellular replication of
30 microbes. NRAMP2 is expressed in several cell and tissue types, including mouse intestinal epithelia. Flea *malvolio* proteins of the present invention appear to be most

similar to NRAMP1. As such, a flea malvolio protein of the present invention represents a novel target for anti-flea vaccines and chemotherapeutic drugs.

The function of OS-D proteins is largely unknown. An OS-D nucleic acid molecule isolated from a *Drosophila melanogaster* antenna cDNA library encodes a protein that shares features common to vertebrate odorant-binding proteins, but has a primary structure unlike odorant-binding proteins. The encoded protein is also homologous to a family of soluble chemosensory proteins from the chemosensory organ of the desert locust, *Schistocerca gregaria*. As such, a flea OS-D protein of the present invention represents a novel target for anti-flea vaccines and chemotherapeutic drugs.

NMDA receptors are a subtype of glutamate-gated ion channels. All glutamate-gated ion channels transmit Na⁺ and K⁺ when stimulated, resulting in a depolarization of the membrane potential. NMDA receptors also transport Ca⁺⁺ into cells upon stimulation, which distinguishes NMDA receptors from the other glutamate-gated ion channels. NMDA receptors play an important role in glutamate excitotoxicity, which has been linked to a number of neurodegenerative disorders such as focal cerebral ischemia (stroke), Parkinson's disease, Huntington's chorea, Alzheimer's disease, schizophrenia and epilepsy. It is thought that the Ca⁺⁺ influx in open NMDA channels is the mediator for these diseases, since the increase in intracellular Ca⁺⁺ concentration leads to the induction of metabolic changes in the cell, including the activation of Ca⁺⁺ dependent proteases and production of free-oxygen radicals. As such, a flea NMDA protein of the present invention represents a novel target for anti-flea vaccines and chemotherapeutic drugs.

CLBP proteins of the present invention appear to fall into the family of PBP/GOBP proteins (pheromone binding protein/general odorant binding protein) based on sequence homology with members of this family (30% identity with PBPRP-2, pheromone binding protein related protein #2 of *Drosophila melanogaster*, and approximately the same identity with CSRLBP, chemical sense related lipophilic ligand binding protein of *Phormia regina*). Without being bound by theory, it is believed that these proteins are involved in the perception of odors or pheromones, such as the ability to sense the presence of a host or mate. As such, a flea CLBP protein of the present invention represents a novel target for anti-flea vaccines and chemotherapeutic drugs.

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Peritrophins, including flea PL2, PL3 and PL4 proteins of the present invention, are a family of putative chitin-binding proteins that comprise a structural component of the peritrophic matrix, an acellular membrane composed of proteins and sugars, most commonly chitin which forms a barrier between the contents of an ingested meal and the gut epithelia. Peritrophin-like proteins have also been shown to be present in the trachea of *Drosophila* embryos, indicating that such proteins may have additional roles outside the midgut. The function of the peritrophin-like proteins in adult fleas is not clear, since adult fleas do not produce a peritrophic matrix in the gut. Peritrophins have been investigated as targets for immunological control of hematophagous insects including the sheep blowfly, *Lucilia cuprina*. It has been shown in this insect that ingestion of antibodies against peritrophins inhibits the growth of larvae and can result in increased larval mortality. It has also been shown that the ingestion of antibodies against peritrophins reduces the permeability of the peritrophic matrix in *L. cuprina* larvae. This in turn may inhibit the movement of digested food across the peritrophic matrix to the gut epithelium, resulting in starvation. As such, a flea peritrophin of the present invention represents a novel target for anti-flea vaccines and chemotherapeutic drugs.

In general, voltage-gated chloride channels (VGCC) maintain resting epithelial and neural membrane potentials and prevent hyperexcitability (sustained contraction) in muscle cells. In *Drosophila* Malpighian tubules, the diuretic hormone leukokinin has been shown to stimulate voltage-gated chloride channels in the stellate cells by increasing intracellular calcium levels. The flea VGCC protein sequence of the present invention contains an EF-hand calcium binding motif, indicating potential regulation by calcium ions, and thus a possible link to leukokinins and diuresis. Chloride channels are critical for diuresis since chloride is the primary anion driving diuresis and is required to help neutralize the sodium and potassium cations that are secreted into the lumen in response to diuretic peptide. The mRNA for the VGCC of the present invention has been shown to be HMT-specific in adult fleas, indicating a potential role in diuresis. As such, a flea VGCC of the present invention represents a novel target for anti-flea vaccines and chemotherapeutic drugs.

The CLIC family of chloride channels are voltage-gated chloride channels that are expressed on a variety of vesicles and are thought to act in concert with the V-ATPase pump to regulate the pH of the vesicle interior. Members of the CLIC family

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have also been shown to be expressed on the plasma membrane, again, in association with the V-ATPase pump. In humans, a homologous protein has been shown to be expressed on the plasma membrane in epithelial tissues, suggesting a possible role in transepithelial chloride transport and in cows, an antibody against a homologous channel
5 has been shown to inhibit all chloride conductance in kidney microsomes. If the CLIC gene product is indeed involved in transepithelial chloride transport in HMT tissues, it likely plays a critical role in mediating diuresis. As such, a flea CLIC of the present invention represents a novel target for anti-flea vaccines and chemotherapeutic drugs.

The NAH exchanger uses the proton gradient in the lumen of the Malpighian
10 tubule to power the transport of sodium ions across the apical membrane into the lumen. The transport of sodium ions across the Malpighian tubule epithelia is induced by diuretic peptide and is a critical step in the induction of diuresis. The Northern blot analysis described herein indicates that NAH mRNA is upregulated within 15 minutes of feeding in adults, which is consistent with a molecule having a role in diuresis. In many
15 insects, sodium has been shown to be the principle ion driving diuresis. The NAH exchanger has been shown to be located on the apical membrane in the Malpighian tubules, but may also be located in the hindgut and rectum. If located in the hindgut and rectum, it could be accessible to antibody attack on either the basolateral or apical membranes. As such, a flea NAH of the present invention represents a novel target for
20 anti-flea vaccines and chemotherapeutic drugs.

SVP proteins have structural and sequence conservation with a bacterial family of proton co-transporters, with the mammalian proton/glucose transporter, and with organic ion transporters. SVP has 12 putative transmembrane regions that arise from an internal duplication. In mammals, it is located on neural and endocrine vesicles and is
25 thought to function in the uptake of neurotransmitters into vesicles utilizing the proton gradient. Neurotransmitters in turn regulate the activity the ion channels on these membranes. In the Malpighian tubules, the activity of the ion channels determines the rate of diuresis, or fluid secretion from the hemolymph into the lumen. Thus, inhibiting the transport of neurotransmitters in the HMT tissues may have significant effects on the
30 functions of these tissues. As such, a flea SVP of the present invention represents a novel target for anti-flea vaccines and chemotherapeutic drugs.

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The function of flea AUP proteins is largely unknown. *C. felis* AUP shares some homology to *Drosophila melanogaster* anoxia-regulated gene product *fau*. The *Drosophila melanogaster* *fau* gene has no homology to previously described database entries, but localizes to laminal and cortical neurons of the *Drosophila* CNS by in situ hybridization, and plays an important role in response to O₂ deprivation as measured by impaired recovery time of transgenic flies over-expressing *fau* to anoxia. As such, a flea AUP of the present invention represents a novel target for anti-flea vaccines and chemotherapeutic drugs.

A flea 7B2 protein has some BLAST homology to the neuroendocrine protein 7B2 from various organisms, including *Drosophila*, *C. elegans*, the pond snail *Lymnaea stagnalis*, and humans. 7B2 has been implicated in activation of prohormone convertase 2 (PC2) an important neuroendocrine precursor processing endoprotease. Additionally, 7B2 was found to be critical in islet hormone processing in mice using null mutants which displayed hypoglycemia, hyperproinsulinemia and hypoglucagonemia. As such, a flea 7B2 of the present invention represents a novel target for anti-flea vaccines and chemotherapeutic drugs.

Flea allantoinase nucleic acid molecules of known length isolated from *C. felis* are denoted "nCfALN_#", for example nCfALN₂₀₅₇, wherein "#" refers to the number of nucleotides in that molecule, and allantoinase proteins of known length are denoted "PCfALN_#" (for example PCfALN₃₈₄) wherein "#" refers to the number of amino acid residues in that molecule. Similarly, *C. felis* CBP nucleic acid molecules and proteins of known length are denoted "nCfCBP_#" and "PCfCBP_#", respectively; *C. felis* NKAB nucleic acid molecules and proteins of known length are denoted "nCfNKAB_#" and "PCfNKAB_#", respectively; *C. felis* LGIC nucleic acid molecules and proteins of known length are denoted "nCfLGIC_#" and "PCfLGIC_#", respectively; *C. felis* ANON nucleic acid molecules and proteins of known length are denoted "nCfANON_#" and "PCfANON_#", respectively; *C. felis* MALV nucleic acid molecules and proteins of known length are denoted "nCfMALV_#" and "PCfMALV_#" respectively; *C. felis* OS-D nucleic acid molecules and proteins of known length are denoted "nCfOSD_#" and "PCfOSD_#" respectively; *C. felis* NMDA nucleic acid molecules and proteins of known length are denoted "nCfNMDA_#" and "PCfNMDA_#" respectively; *C. felis* CLBP nucleic

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acid molecules and proteins of known length are denoted "nCfCLBP_#" and "PCfCLBP_#" respectively, *C. felis* NAH nucleic acid molecules and proteins of known length are denoted "nCfNAH_#" and "PCfNAH_#" respectively, *C. felis* CLIC nucleic acid molecules and proteins of known length are denoted "nCfCLIC_#" and "PCfCLIC_#" respectively, *C. felis* PL2 nucleic acid molecules and proteins of known length are denoted "nCfPL2_#" and "PCfPL2_#" respectively, *C. felis* PL3 nucleic acid molecules and proteins of known length are denoted "nCfPL3_#" and "PCfPL3_#" respectively, *C. felis* PL4 nucleic acid molecules and proteins of known length are denoted "nCfPL4_#" and "PCfPL4_#" respectively, *C. felis* SVP nucleic acid molecules and proteins of known length are denoted "nCfSVP_#" and "PCfSVP_#" respectively, *C. felis* VGCC nucleic acid molecules and proteins of known length are denoted "nCfVGCC_#" and "PCfVGCC_#" respectively, *C. felis* AUP nucleic acid molecules and proteins of known length are denoted "nCfAUP_#" and "PCfAUP_#" respectively, and *C. felis* 7B2 nucleic acid molecules and proteins of known length are denoted "nCf7B2_#" and "PCf7B2_#" respectively.

The present invention also provides for HMT and HNC DNA molecules that are specific tags for messenger RNA molecules derived from HMT and HNC tissues. Such DNA molecules can correspond to an entire or partial sequence of a messenger RNA, and therefore, a DNA molecule corresponding to such a messenger RNA molecule (i.e. a cDNA molecule), can encode a full-length or partial-length protein. A nucleic acid molecule encoding a partial-length protein can be used directly as a probe or indirectly to generate primers to identify and/or isolate a cDNA nucleic acid molecule encoding a corresponding, or structurally related, full-length protein. Such a partial cDNA nucleic acid molecule can also be used in a similar manner to identify a genomic nucleic acid molecule, such as a nucleic acid molecule that contains the complete gene including regulatory regions, exons and introns. Methods for using partial HMT and HNC cDNA molecules and sequences to isolate full-length transcripts and corresponding cDNA molecules are described in the examples herein below.

The proteins and nucleic acid molecules of the present invention can be obtained from their natural source, or can be produced using, for example, recombinant nucleic acid technology or chemical synthesis. Also included in the present invention is the use of these proteins and nucleic acid molecules as well as antibodies and inhibitory

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compounds thereto as therapeutic compositions to protect animals from flea infestation as well as in other applications, such as those disclosed below.

Flea HMT and HNC proteins and nucleic acid molecules of the present invention have utility because they represent novel targets for anti-arthropod vaccines and
5 chemotherapeutic drugs. The products and processes of the present invention are advantageous because they enable the inhibition of arthropod development, metamorphosis, feeding, digestion and/or reproduction processes that involve HMT and/or HNC proteins.

The head and nerve cord of the flea, including antennae, brain, corpora
10 cardiacum, corpora allata, and subesophageal and abdominal ganglion tissues are of interest as such tissues are highly enriched for transcripts that encode neuronal and endocrine targets, as well as targets involved in chemosensory and mechanosensory reception. By sequencing cDNA fragments from a library enriched in flea head and nerve cord nucleic acid sequences (referred to herein as HNC nucleic acid sequences),
15 genes, and their respective full-length coding regions, integrally involved with flea neuronal and endocrine function are identified. Once identified, these genes can be further characterized and specific interference strategies are designed. As such, flea HNC proteins and nucleic acid molecules of the present invention have utility because they represent novel targets for anti-arthropod vaccines and chemotherapeutic drugs.

20 Blood-feeding insects such as fleas ingest large quantities of blood relative to their body weight and, as such, are adapted to reduce the volume of the ingested blood meal through the rapid elimination of water. In addition, the concentrations of sodium, potassium, and chloride ions in the blood meal are greater than in the hemolymph of fleas, necessitating the excretion of excessive amounts of these ions. The active
25 transport of these ions from the hemolymph into the lumens of the Malpighian tubules and the hindgut drives the passive transport of water and other hemolymph contents into these organs as well. While passing through these organs, waste products from the hemolymph are excreted and needed nutrients, water, and salts are reabsorbed. As such, interfering with these essential processes is an important strategy for developing a
30 product for controlling flea populations. By sequencing cDNA fragments from a library enriched in hindgut and Malpighian tubule nucleic acid sequences (referred to herein as

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HMT nucleic acid sequences), genes integrally involved with these processes, and their respective full-length coding regions, are identified. Once identified, these genes are further characterized and specific interference strategies can be designed. As such, flea HMT proteins and nucleic acid molecules of the present invention have utility because
5 they represent novel targets for anti-arthropod vaccines and chemotherapeutic drugs.

One embodiment of the present invention is an isolated protein that includes a flea HMT and/or HNC protein. It is to be noted that the term "a" or "an" entity refers to one or more of that entity, for example, a protein, a nucleic acid molecule, an antibody and a therapeutic composition refers to "one or more" or "at least one" protein, nucleic
10 acid molecule, antibody and therapeutic composition respectively. As such, the terms "a" (or "an"), "one or more" and "at least one" can be used interchangeably herein. It is also to be noted that the terms "comprising", "including", and "having" can be used interchangeably. According to the present invention, an isolated, or biologically pure, protein, is a protein that has been removed from its natural milieu. As such, "isolated"
15 and "biologically pure" do not necessarily reflect the extent to which the protein has been purified. An isolated protein of the present invention can be obtained from its natural source, can be produced using recombinant DNA technology, or can be produced by chemical synthesis.

As used herein, isolated flea HMT and/or HNC proteins of the present invention
20 can be full-length proteins or any homologue of such proteins. An isolated protein of the present invention, including a homologue, can be identified in a straight-forward manner by the protein's ability to elicit an immune response against a flea HMT and/or HNC protein or by the protein's HMT and/or HNC activity. Examples of flea HMT and HNC homologue proteins include flea HMT and HNC proteins in which amino acids have
25 been deleted (e.g., a truncated version of the protein, such as a peptide), inserted, inverted, substituted and/or derivatized (e.g., by glycosylation, phosphorylation, acetylation, myristoylation, prenylation, palmitoylation, amidation and/or addition of glycerophosphatidyl inositol) such that the homologue includes at least one epitope capable of eliciting an immune response against a flea HMT or HNC protein, and/or of
30 binding to an antibody directed against a flea HMT or HNC protein. That is, when the homologue is administered to an animal as an immunogen, using techniques known to

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those skilled in the art, the animal will produce an immune response against at least one epitope of a natural flea HMT or HNC protein. The ability of a protein to effect an immune response can be measured using techniques known to those skilled in the art. As used herein, the term "epitope" refers to the smallest portion of a protein or other antigen capable of selectively binding to the antigen binding site of an antibody or a T cell receptor. It is well accepted by those skilled in the art that the minimal size of a protein epitope is about four to six amino acids. As is appreciated by those skilled in the art, an epitope can include amino acids that naturally are contiguous to each other as well as amino acids that, due to the tertiary structure of the natural protein, are in sufficiently close proximity to form an epitope. According to the present invention, an epitope includes a portion of a protein comprising at least about 4 amino acids, at least about 5 amino acids, at least about 6 amino acids, at least about 10 amino acids, at least about 15 amino acids, at least about 20 amino acids, at least about 25 amino acids, at least about 30 amino acids, at least about 35 amino acids, at least about 40 amino acids or at least about 50 amino acids in length.

In one embodiment of the present invention a flea homologue protein has HMT or HNC activity, i.e. the homologue exhibits an activity similar to its natural counterpart. Examples of such activities are disclosed herein; e.g., all. Methods to detect and measure such activities are known to those skilled in the art. Examples of such activities are disclosed herein; e.g. allantoinase, chitin-binding protein, sodium/potassium ATPase, ligand-gated chloride channel, ANON/23DA, malvolio, odorant binding protein-like protein, N-methyl-D-aspartate receptor associated protein, chemical sense related lipophilic ligand binding protein, Sodium/Hydrogen Transporter-like protein, a Chloride Intracellular Channel-like protein, aPeritrophin-like protein, aPeritrophin-like protein, aPeritrophin-like protein, a synaptic vesicle 2B-like protein, a voltage-gated Chloride-like protein, an anoxia upregulated protein-like protein, and a neuroendocrine specific 7B2-like protein.

Flea HMT and/or HNC homologue proteins can be the result of natural allelic variation or natural mutation. Flea HMT and/or HNC protein homologues of the present invention can also be produced using techniques known in the art including, but not limited to, direct modifications to the protein or modifications to the gene encoding the

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protein using, for example, classic or recombinant DNA techniques to effect random or targeted mutagenesis.

Flea HMT and HNC proteins of the present invention are encoded by flea HMT and HNC nucleic acid molecules, respectively. As used herein, flea HMT and HNC
5 nucleic acid molecules include nucleic acid sequences related to natural flea HMT and HNC genes, and, preferably, to *Ctenocephalides felis* HMT and HNC genes. As used herein, flea HMT and HNC genes include all regions such as regulatory regions that control production of flea HMT and HNC proteins encoded by such genes (such as, but not limited to, transcription, translation or post-translation control regions) as well as the
10 coding region itself, and any introns or non-translated coding regions. As used herein, a nucleic acid molecule that "includes" or "comprises" a sequence may include that sequence in one contiguous array, or may include the sequence as fragmented exons such as is often found for a flea gene. As used herein, the term "coding region" refers to a continuous linear array of nucleotides that translates into a protein. A full-length
15 coding region is that coding region that is translated into a full-length, i.e., a complete protein as would be initially translated in its natural milieu, prior to any post-translational modifications.

One embodiment of the present invention is a *C. felis* ALN gene that includes the nucleic acid sequence SEQ ID NO:1 and/or SEQ ID NO:4, a *C. felis* CBP gene that
20 includes the nucleic acid sequence SEQ ID NO:7 and/or SEQ ID NO:10, a *C. felis* NKAB gene that includes the nucleic acid sequence SEQ ID NO:13 and/or SEQ ID NO:16, a *C. felis* LGIC gene that includes the nucleic acid sequence SEQ ID NO:19, SEQ ID NO:22, SEQ ID NO:1861, and/or SEQ ID NO:1864, a *C. felis* ANON gene that includes the nucleic acid sequence SEQ ID NO:25 and/or SEQ ID NO:28, a *C. felis*
25 MALV gene that includes the nucleic acid sequence SEQ ID NO:31 and/or SEQ ID NO:34, a *C. felis* OS-D gene that includes the nucleic acid sequence SEQ ID NO:37 and/or SEQ ID NO:40, a *C. felis* NMDA gene that includes the nucleic acid sequence SEQ ID NO: 43 and/or SEQ ID NO:46, a *C. felis* CLBP gene that includes the nucleic acid sequence SEQ ID NO:153, SEQ ID NO:156, SEQ ID NO:159, SEQ ID NO:162,
30 SEQ ID NO:165, and/or SEQ ID NO:168, a *C. felis* NAH gene that includes the nucleic acid sequence SEQ ID NO:1867 and/or SEQ ID NO:1870, a *C. felis* CLIC gene that

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includes the nucleic acid sequence SEQ ID NO:1872 and/or SEQ ID NO:1875, a *C. felis* PL2 gene that includes the nucleic acid sequence SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1880, SEQ ID NO:1882 and/or SEQ ID NO:1885, a *C. felis* PL3 gene that includes the nucleic acid sequence SEQ ID NO:1887 and/or SEQ ID NO:1890, a *C. felis* 5 PL4 gene that includes the nucleic acid sequence SEQ ID NO:1896 and/or SEQ ID NO:1899, a *C. felis* SVP gene that includes the nucleic acid sequence SEQ ID NO:1901 and/or SEQ ID NO:1904, a *C. felis* VGCC gene that includes the nucleic acid sequence SEQ ID NO:1914 and/or SEQ ID NO:1917, a *C. felis* AUP gene that includes the nucleic acid sequence SEQ ID NO:1919 and/or SEQ ID NO:1922, a *C. felis* 7B2 gene 10 that includes the nucleic acid sequence SEQ ID NO:1924 and/or SEQ ID NO:1927, a *C. felis* gene that includes a nucleic acid sequence of Table I, Table II, Table III and/or Table IV; as well as the complements of any of these nucleic acid sequences. These nucleic acid sequences are further described herein. For example, nucleic acid sequence SEQ ID NO:1 represents the deduced sequence of the coding strand of a *C. felis* cDNA 15 denoted herein as *C. felis* ALN nucleic acid molecule nCfALN₂₀₅₇, the production of which is disclosed in the Examples. Nucleic acid molecule SEQ ID NO:1 comprises an apparently full-length coding region. The complement of SEQ ID NO:1 (represented herein by SEQ ID NO:3) refers to the nucleic acid sequence of the strand fully complementary to the strand having SEQ ID NO:1, which can easily be determined by 20 those skilled in the art. Likewise, a nucleic acid sequence complement of any nucleic acid sequence of the present invention refers to the nucleic acid sequence of the nucleic acid strand that is fully complementary to (i.e., can form a complete double helix with) the strand for which the sequence is cited. For example, the complements of SEQ ID NOs: 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 34, 37, 40, 43, 46, 153, 156, 159, 162, 165, and 25 168 are SEQ ID NOs: 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 155, 158, 161, 164, 167, and 170, respectively. It should be noted that since nucleic acid sequencing technology is not entirely error-free, SEQ ID NO:1 (as well as other nucleic acid and protein sequences presented herein) represents an apparent nucleic acid sequence of the nucleic acid molecule encoding an ALN protein of the present invention.

30 Translation of SEQ ID NO:1, the coding strand of nCfALN₂₀₅₇, as well as translation of SEQ ID NO:4, the coding strand of nCfALN₁₁₅₂, which represents the

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coding region of SEQ ID NO:1, each yields a protein of about 384 amino acids, denoted herein as PCfALN₃₈₄, the amino acid sequence of which is presented in SEQ ID NO:2, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:4.

5 Translation of SEQ ID NO:7, the coding strand of nCfCBP₁₁₂₈, as well as translation of SEQ ID NO:10, the coding strand of nCfCBP₁₁₂₈, which represents the coding region of SEQ ID NO:7, each yields a protein of about 272 amino acids, denoted herein as PCfCBP₂₇₂, the amino acid sequence of which is presented in SEQ ID NO:8, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID
10 NO:10.

Translation of SEQ ID NO:13, the coding strand of nCfNKAB₁₇₁₄, as well as translation of SEQ ID NO:16, the coding strand of nCfNKAB₉₇₈, which represents the coding region of SEQ ID NO:13, each yields a protein of about 326 amino acids, denoted herein as PCfNKAB₃₂₆, the amino acid sequence of which is presented in SEQ
15 ID NO:14, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:16.

Translation of SEQ ID NO:19, the coding strand of nCfLGIC₂₂₄₀, as well as translation of SEQ ID NO:22, the coding strand of nCfLGIC₁₇₀₇, which represents the coding region of SEQ ID NO:19, each yields a protein of about 569 amino acids,
20 denoted herein as PCfLGIC₅₆₉, the amino acid sequence of which is presented in SEQ ID NO:20, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:22.

Translation of SEQ ID NO:25, the coding strand of nCfANON₁₄₂₉, as well as translation of SEQ ID NO:28, the coding strand of nCfANON₁₁₉₄, which represents the
25 coding region of SEQ ID NO:25, each yields a protein of about 398 amino acids, denoted herein as PCfANON₃₉₈, the amino acid sequence of which is presented in SEQ ID NO:26, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:28.

Translation of SEQ ID NO:31, the coding strand of nCfMALV₇₆₅, as well as
30 translation of SEQ ID NO:34, the coding strand of nCfMALV₇₆₂, which represents the coding region of SEQ ID NO:31, each yields a protein of about 327 amino acids,

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denoted herein as PCfMALV₂₅₄, the amino acid sequence of which is presented in SEQ ID NO:32, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:34.

Translation of SEQ ID NO:37, the coding strand of nCfOSD₆₀₄, as well as
5 translation of SEQ ID NO:40, the coding strand of nCfOSD₄₀₅, which represents the coding region of SEQ ID NO:37, each yields a protein of about 135 amino acids, denoted herein as PCfOSD₁₃₅, the amino acid sequence of which is presented in SEQ ID NO:38, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:40.

10 Translation of SEQ ID NO:43, the coding strand of nCfNMDA₁₂₂₇, as well as translation of SEQ ID NO:46, the coding strand of nCfNMDA₇₃₈, which represents the coding region of SEQ ID NO:43, each yields a protein of about 246 amino acids, denoted herein as PCfNMDA₂₄₆, the amino acid sequence of which is presented in SEQ ID NO:44, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3
15 of SEQ ID NO:46.

Translation of SEQ ID NO:153, the coding strand of nCfCLBP1A₆₃₃, as well as translation of SEQ ID NO:156, the coding strand of nCfCLBP1A₄₄₁, which represents the coding region of SEQ ID NO:153, each yields a protein of about 147 amino acids, denoted herein as PCfCLBP₁₄₇, the amino acid sequence of which is presented in SEQ
20 ID NO:154, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:156.

Translation of SEQ ID NO:162, the coding strand of nCfCLBP2A₆₃₁, as well as translation of SEQ ID NO:165, the coding strand of nCfCLBP2A₄₄₁, which represents the coding region of SEQ ID NO:162, each yields a protein of about 147 amino acids,
25 denoted herein as PCfCLBP2A₁₄₇, the amino acid sequence of which is presented in SEQ ID NO:163, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:165.

Translation of SEQ ID NO:1861, the coding strand of nCfLGIC₂₇₃₉, as well as translation of SEQ ID NO:1864, the coding strand of nCfLGIC₂₀₁₆, which represents the
30 coding region of SEQ ID NO:1861, each yields a protein of about 672 amino acids, denoted herein as PCfLGIC₆₇₂, the amino acid sequence of which is presented in SEQ ID

NO:1862, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:1864.

Translation of SEQ ID NO:1867, the coding strand of nCfNAH₂₈₈₀, as well as translation of SEQ ID NO:1870, the coding strand of nCfNAH₁₈₂₄, which represents the coding region of SEQ ID NO:1867, each yields a protein of about 608 amino acids, denoted herein as PCfNAH₆₀₈, the amino acid sequence of which is presented in SEQ ID NO:1868, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:1870.

Translation of SEQ ID NO:1872, the coding strand of nCfCLIC₂₂₈₃, as well as translation of SEQ ID NO:1875, the coding strand of nCfCLIC₇₈₆, which represents the coding region of SEQ ID NO:1872, each yields a protein of about 262 amino acids, denoted herein as PCfCLIC₂₆₂, the amino acid sequence of which is presented in SEQ ID NO:1873, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:1875.

Translation of SEQ ID NO:1882, the coding strand of nCfPL2₁₄₇₇, as well as translation of SEQ ID NO:1885, the coding strand of nCfPL2₁₃₅₉, which represents the coding region of SEQ ID NO:1882, each yields a protein of about 453 amino acids, denoted herein as PCfPL2₄₅₃, the amino acid sequence of which is presented in SEQ ID NO:1883, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:1885.

Translation of SEQ ID NO:1887, the coding strand of nCfPL3₄₀₆, as well as translation of SEQ ID NO:1890, the coding strand of nCfPL3₂₄₃, which represents the coding region of SEQ ID NO:1887, each yields a protein of about 81 amino acids, denoted herein as PCfPL3₈₁, the amino acid sequence of which is presented in SEQ ID NO:1888, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:1890.

Translation of SEQ ID NO:1896, the coding strand of nCfPL4₁₀₆₂, as well as translation of SEQ ID NO:1899, the coding strand of nCfPL4₈₅₅, which represents the coding region of SEQ ID NO:1896, each yields a protein of about 285 amino acids, denoted herein as PCfPL4₂₈₅, the amino acid sequence of which is presented in SEQ ID

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NO:1897, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:1899.

Translation of SEQ ID NO:1901, the coding strand of nCfSVP₁₈₇₅, as well as translation of SEQ ID NO:1904, the coding strand of nCfSVP₁₅₉₀, which represents the coding region of SEQ ID NO:1901, each yields a protein of about 530 amino acids, denoted herein as PCfSVP₅₃₀, the amino acid sequence of which is presented in SEQ ID NO:1902, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:1904.

Translation of SEQ ID NO:1914, the coding strand of nCfVGCC₃₁₂₆, as well as translation of SEQ ID NO:1917, the coding strand of nCfVGCC₂₅₃₃, which represents the coding region of SEQ ID NO:1914, each yields a protein of about 851 amino acids, denoted herein as PCfVGCC₈₅₁, the amino acid sequence of which is presented in SEQ ID NO:1915, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:1917.

Translation of SEQ ID NO:1919, the coding strand of nCfAUP₁₁₈₁, as well as translation of SEQ ID NO:1922, the coding strand of nCfAUP₃₀₆, which represents the coding region of SEQ ID NO:1919, each yields a protein of about 102 amino acids, denoted herein as PCfAUP₁₀₂, the amino acid sequence of which is presented in SEQ ID NO:1920, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:1922.

Translation of SEQ ID NO:1924, the coding strand of nCf7B2₂₁₆₁, as well as translation of SEQ ID NO:1927, the coding strand of nCf7B2₈₀₁, which represents the coding region of SEQ ID NO:1924, each yields a protein of about 267 amino acids, denoted herein as PCf7B2₂₆₇, the amino acid sequence of which is presented in SEQ ID NO:1925, assuming a first in-frame codon extending from nucleotide 1 to nucleotide 3 of SEQ ID NO:1927.

Table I represents a variety of flea HNC nucleic acid molecules of the present invention. Also cited in Table I are nucleic acid molecules from other organisms which share the closest sequence identity with the cited HNC sequences of the present invention, as determined by submitting each HNC sequence for a search through the National Center for Biotechnology Information (NCBI), National Library of Medicine,

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National Institute of Health, Baltimore, MD, using the BLAST network. This database includes SwissProt + PIR + SPupdate + GenPept + GPUTupdate + PDB databases. The search was conducted using the xBLAST function using default parameters.

TABLE I

SEQ ID NO	Name	Genbank Homology	Organism
63	2096-46	ATPase 6	<i>D. melanogaster</i>
64	2098-25	ATP synthase delta chain	<i>Sus scrofa</i>
65	2098-34	F1-ATPase epsilon-subunit	<i>Ipomoea batatas</i>
66	2110-19	ATP synthase beta subunit	<i>Drosophila pseudoobscura</i>
67	2113-15	ATP synthase delta chain,	<i>Sus scrofa</i>
68	2180-31	ATP synthase alpha subunit precursor	<i>Rattus rattus</i>
69	2224-50	oligomycin sensitivity conferring protein	<i>D. melanogaster</i>
70	2116-51	cysteine dioxygenase	<i>Homo sapiens</i>
71	2116-55	pyrroline-5-carboxylate dehydrogenase (P5CDh)	<i>Homo sapiens</i>
72	2124-17	AMP deaminase	<i>Homo sapiens</i>
73	2138-38	ubiquitin	<i>Mus musculus</i>
74	2184-59	manganese superoxide dismutase	<i>Homo sapiens</i>
75	2096-24	muscle LIM protein 1	<i>D. melanogaster</i>
76	2140-53	F25H5.1a	<i>C. elegans</i>
77	2176-41	Frazzled	<i>D. melanogaster</i>
78	2223-11	LIM domain-containing protein	<i>C. elegans</i>
79	2223-53	deleted in split hand/split foot 1 (DSS1)	<i>Homo sapiens</i>
80	2225-28	stranded-at-second	<i>D. melanogaster</i>
81	2099-61	histone H3	<i>Spisula solidissima</i>
82	2114-21	STE12	<i>S. cerevisiae</i>
83	2117-4	Rad51 homolog	<i>Bombyx mori</i>
84	2138-46	heat shock protein p27	<i>D. immitis</i>
85	2182-37	heat shock protein 70	<i>D. immitis</i>
86	2211-32	BTB-II protein domain gene	<i>D. melanogaster</i>
87	2223-7	heat shock protein	<i>D. melanogaster</i>
88	2224-17	heat shock protein 86	<i>Homo sapiens</i>
89	2225-16	POU domain protein	<i>D. melanogaster</i>
90	2225-18	nucleolin	<i>Xenopus laevis</i>
91	2212-85	thyroid hormone receptor-associated protein complex component TRAP220	<i>Homo sapiens</i>
92	2211-21	T03D8.3	<i>C. elegans</i>
93	2223-67	hepatoma derived growth factor (HDGF)	<i>Mus musculus</i>
94	2225-61	tyrosine hydroxylase type 1 (neuronal form)	<i>D. melanogaster</i>
95	2097-7	sarco/endoplasmic reticulum-type Ca ²⁺ -ATPase	<i>D. melanogaster</i>
96	2098-27	calcium-transporting ATPase	<i>D. melanogaster</i>
97	2099-19	calcium channel alpha-1 subunit	<i>Aplysia californica</i>
98	2120-5	P-type voltage-gated calcium channel alpha 1 subunit homolog	<i>Homo sapiens</i>
99	2124-2	sarco/endoplasmic reticulum Ca ²⁺ -ATPase (SERCA)	<i>Procambarus clarkii</i>
100	2182-43	sulfonylurea receptor 2b	<i>Mus musculus</i>
101	2223-18	Sodium-Potassium-Chloride cotransporter	<i>D. melanogaster</i>
102	2223-63	sarco/endoplasmic reticulum-type Ca ²⁺ (+)-ATPase	<i>D. melanogaster</i>
103	2224-13	similar to ABC transporters	<i>C. elegans</i>

Table I (cont'd)

SEQ ID NO	Name	Genbank Homology	Organism
104	2098-3	Camguk	<i>D. melanogaster</i>
105	2101-9	UNC-89	<i>C. elegans</i>
106	2132-31	arginine kinase	<i>Homarus gammarus</i>
107	2141-51	casein kinase-II beta	<i>Oryctolagus cuniculus</i>
108	2178-18	diacylglycerol kinase eta	<i>Cricetinae</i>
109	2180-32	retinoid- and fatty acid-binding glycoprotein	<i>D. melanogaster</i>
110	2137-23	vitellogenin	<i>Aedes aegypti</i>
111	2144-14	nuclear localization signal spot 1	<i>Mus musculus</i>
112	2212-13	putative n- terminal acetyltransferase	<i>S. cerevisiae</i>
113	2212-27	clathrin associated protein AP47	<i>Drosophila grimshawi</i>
114	2223-28	O1 chloroquine-resistance protein	<i>Plasmodium falciparans</i>
115	2224-14	vitellogenin	<i>Athalia rosae</i>
116	2224-15	antigen NY-CO-3	<i>Homo sapiens</i>
117	2225-24	carbonic anhydrase	<i>C. elegans</i>
118	2225-58	yk500f6.3	<i>C. elegans</i>
119	2225-76	unknown	<i>Homo sapiens</i>
120	2224-86	BmP109 (cerebroside sulfate activator protein family)	<i>Bombyx mori</i>
121	2225-23	intersectin	<i>Homo sapiens</i>
122	2170-16	chemical-sense-related lipophilic-ligand-binding protein	<i>Phormia regina</i>
123	2176-2	olfactory receptor protein 2.4	<i>Danio rerio</i>
124	2212-63	olfactory receptor	<i>Xenopus laevis</i>
125	2224-77	inner mitochondrial membrane translocase Tim23	<i>Homo sapiens</i>
126	2225-12	sodium-dependent multi-vitamin transporter	<i>Rattus norvegicus</i>
127	2225-42	ribophorin I	<i>Rattus norvegicus</i>
128	2101-59	phosphate carrier protein	<i>C. elegans</i>
129	2132-38	proteinase inhibitor	<i>Locusta migratoria</i>
130	2174-72	HE4 protein	<i>Homo sapiens</i>
131	2211-48	spermatogenic cell/sperm-associated Tat-binding homologue	<i>Rattus norvegicus</i>
132	2110-23	Gcap1 gene product	<i>Mus musculus</i>
133	2116-64	toll protein	<i>D. melanogaster</i>
134	2124-3	tuberin (TSC2) gene	<i>Homo sapiens</i>
135	2178-55	RAS-like protein	<i>Gallus gallus</i>
136	2223-35	Rho1 gene product	<i>D. melanogaster</i>
137	2224-82	paxillin	<i>Homo sapiens</i>
138	2225-44	adenylyl cyclase-associated protein (CAP)	<i>Homo sapiens</i>
139	2225-80	adenylate kinase	<i>Gallus gallus</i>
140	2110-52	hydroxyproline-rich glycoprotein	<i>Phaseolus vulgaris</i>
141	2115-49	mitogen inducible gene mig-2	<i>Homo sapiens</i>
142	2116-5	F52H3.5	<i>C. elegans</i>
143	2172-89	12D3 antigen	<i>Babesia bovis</i>
144	2178-20	frameshift	<i>P. falciparum</i>
145	2178-81	KIAA0066	<i>Homo sapiens</i>
146	2182-16	Y57G11C.4	<i>C. elegans</i>
147	2182-53	C16C10.5	<i>C. elegans</i>

Table I (cont'd)

SEQ ID NO	Name	Genbank Homology	Organism
148	2211-8	Unknown	<i>Homo sapiens</i>
149	2211-31	hypothetical protein	<i>Arabidopsis thaliana</i>
150	2223-54	ORF YNL207w	<i>S. cerevisiae</i>
151	2224-94	14.3 kDa perchloric acid soluble protein	<i>Capra hircus</i>
152	2225-36	EST clone	<i>C. elegans</i>
1719	2228-2	BIGH3	<i>H. sapiens</i>
1720	2228-5	H protein	<i>H. sapiens</i>
1721	2228-8	ubiquinol-cytochrome c reductase	<i>Schizosaccharomyces pombe</i>
1722	2228-11	similar to mitochondrial ATPase inhibitors	<i>C. elegans</i>
1723	2228-16	Putative enzyme	<i>E. coli</i>
1724	2228-18	Ribosomal protein L7A	<i>Drosophila</i>
1725	2228-22	Troponin-I wings up A	<i>Drosophila</i>
1726	2228-25	tis gene product	<i>E. coli</i>
1727	2228-27	YCR521 gene product	<i>Saccharomyces cerevisiae</i>
1728	2228-28	putative transport system permease protein	<i>E. coli</i>
1729	2228-32	SapA protein	<i>E. coli</i>
1730	2228-34	Putative protein	<i>Arabidopsis thaliana</i>
1731	2228-37	Ada	<i>E. coli</i>
1732	2228-39	Titin	<i>H. sapiens</i>
1733	2228-42	adenylosuccinate synthetase	<i>Mus musculus</i>
1734	2228-43	transfer RNA-Ala synthetase	<i>B. mori</i>
1735	2228-44	C4 zinc finger DNA-binding protein	<i>Drosophila</i>
1736	2228-48	heme A: farnesyltransferase	<i>H. sapiens</i>
1737	2228-51	URF 4L (aa 1-96)	<i>Drosophila</i>
1738	2228-53	DOLICHOL-PHOSPHATE MANNOSYLTRANSFERASE	<i>E. coli</i>
1739	2228-58	troponin-T	<i>Drosophila</i>
1740	2228-59	protein disulfide isomerase	<i>Drosophila</i>
1741	2228-63	orf, hypothetical protein	<i>E. coli</i>
1742	2228-66	ilvl polypeptide	<i>E. coli</i>
1743	2228-68	orf, hypothetical protein	<i>E. coli</i>
1744	2228-72	Respiratory nitrate reductase 1 alpha chain	<i>E. coli</i>
1745	2228-77	homolog of virulence factor	<i>E. coli</i>
1746	2228-84	ORF o164	<i>E. coli</i>
1747	2228-91	nuclear protein E3-3 orf1	<i>Rattus norvegicus</i>
1748	2245-66	Troponin C	<i>Drosophila</i>
1749	2245-70	Predicted secreted protein	<i>Plasmodium falciparum</i>
1750	2245-72	Cytochrome C-1	<i>H. sapiens</i>
1751	2245-75	rpoB	<i>Plasmodium falciparum</i>
1752	2245-78	sarco(endo)plasmic reticulum-type calcium ATPase	<i>Heliothis virescens</i>
1753	2246-31	Ras-related GTP-binding protein	<i>H. sapiens</i>
1754	2246-57	Similar to inositol 1,4,5-triphosphate receptor	<i>C. elegans</i>
1755	2246-61	reverse transcriptase-like protein	<i>Aedes aegypti</i>
1756	2247-13	polyprotein	<i>Drosophila</i>
1757	2247-14	ORF2 for putative reverse transcriptase	<i>Drosophila</i>
1758	2247-42	Asparaginyl tRNA Synthetase	<i>H. sapiens</i>
1759	2247-44	calcium binding protein	<i>Drosophila</i>
1760	2247-58	similar to Fibronectin type III domain	<i>C. elegans</i>

Table I (cont'd)

SEQ ID NO	Name	Genbank Homology	Organism
1761	2247-62	reverse transcriptase	<i>Drosophila</i>
1762	2247-65	gag-like protein	<i>Culex pipiens</i>
1763	2247-79	L-3-phosphoserine phosphatase	<i>H. sapiens</i>
1764	2247-80	esterase E4	<i>Myzus persicae</i>
1765	2247-89	Similar to aldehyde dehydrogenase	<i>C. elegans</i>
1766	2248-76	O-44 protein	<i>Rattus sp.</i>
1767	2248-85	cDNA isolated for this protein using a monoclonal antibody directed against the p27k prosomal protein	<i>H. sapiens</i>
1768	2249-3	Projectin	<i>Drosophila</i>
1769	2249-5	ORF_ID:o312#14	<i>E. coli</i>
1770	2249-9	Heat shock protein 60	<i>Culicoides variipennis</i>
1771	2249-11	enigma protein	<i>H. sapiens</i>
1772	2249-12	alpha, alpha-trehalose glucohydrolase	<i>Oryctolagus cuniculus</i>
1773	2249-13	small GTP binding protein	<i>Drosophila</i>
1774	2249-14	Spermidine/putrescine transport system permease	<i>E. coli</i>
1775	2249-19	neuroendocrine-specific protein C	<i>H. sapiens</i>
1776	2249-21	a-agglutinin core subunit	<i>Saccharomyces cerevisiae</i>
1777	2249-24	KIAA0337	<i>H. sapiens</i>
1778	2249-34	su(wa) protein	<i>Drosophila</i>
1779	2249-42	regulator of kdp operon	<i>E. coli</i>
1780	2249-59	No definition line found	<i>C. elegans</i>
1781	2249-60	proline oxidase	<i>Drosophila</i>
1782	2249-62	Formate acetyltransferase	<i>E. coli</i>
1783	2249-70	similar to HECT-domain	<i>C. elegans</i>
1784	2249-75	PHOSPHORIBOSYLFORMYLGLYCINAMIDINE CYCLO-LIGASE	<i>E. coli</i>
1785	2249-77	Hypothetical 38.5 kd protein in agal-mtr intergenic region precursor	<i>E. coli</i>
1786	2249-85	D4L	<i>Variola virus</i>
1787	2249-87	similar to isocitrate dehydrogenase	<i>C. elegans</i>
1788	2250-6	Fii (head-tail joining;117)	<i>Bacteriophage Lambda</i>
1789	2250-7	possible NAGC-like transcriptional regulator	<i>E. coli</i>
1790	2250-10	cysteine string protein	<i>Bos taurus</i>
1791	2250-13	Tol B protein	<i>E. coli</i>
1792	2250-14	6-phosphogluconate dehydratase	<i>E. coli</i>
1793	2250-15	6-phosphogluconate dehydratase	<i>E. coli</i>
1794	2250-22	PSST subunit of the NADH: ubiquinone oxidoreductase	<i>Bos taurus</i>
1795	2250-30	sol i 3 antigen	<i>Solenopsis invicta</i>
1796	2250-36	predicted using Genefinder; similar to tRNA synthetases class I (E and Q	<i>C. elegans</i>
1797	2250-37	PNP	<i>H. sapiens</i>
1798	2250-42	ORF_ID:o331#2	<i>E. coli</i>
1799	2250-44	Extensin	<i>E. coli</i>
1800	2250-47	ORF o654	<i>E. coli</i>
1801	2250-48	Gcap1 gene product	<i>Mus musculus</i>
1802	2250-52	similar to human MLH1 on chromosome 3p21	<i>Mus musculus</i>
1803	2250-53	Hypothetical 27.6 kd protein in hpt-panD intergenic region.	<i>E. coli</i>

Table I (cont'd)

SEQ ID NO	Name	Genbank Homology	Organism
1804	2250-58	UmuC protein	<i>E. coli</i>
1805	2250-61	dJ134E15.1 (Blimp-1	<i>H. sapiens</i>
1806	2250-63	ribosomal protein L23-related product homolog	<i>Rattus rattus</i>
1807	2250-65	hypothetical protein MJ1143	<i>E. coli</i>
1808	2250-68	HI0025 homolog	<i>E. coli</i>
1809	2250-77	R34094_1	<i>H. sapiens</i>
1810	2250-78	erythrocyte binding protein	<i>Plasmodium yoelii</i>
1811	2250-79	fosmidomycin resistance protein	<i>E. coli</i>
1812	2250-81	cyclophilin 1	<i>Drosophila</i>
1813	2250-83	putative glutamine synthetase	<i>E. coli</i>
1814	2251-3	J (tail:host specificity;1132)	<i>Bacteriophage Lambda</i>
1815	2251-5	Molybdopterin biosynthesis MoEB protein	<i>E. coli</i>
1816	2251-6	Fo-ATP synthase subunit b	<i>Drosophila</i>
1817	2251-9	citrate lyase alpha chain	<i>E. coli</i>
1818	2251-10	cuticle protein ACP65A	<i>Drosophila</i>
1819	2251-13	H repeat-associated protein in rhsC 3'region (orf-h3	<i>E. coli</i>
1820	2251-20	glycine-rich protein	<i>Arabidopsis thaliana</i>
1821	2251-23	2-oxoglutarate dehydrogenase precursor	<i>H. sapiens</i>
1822	2251-29	NFX1	<i>H. sapiens</i>
1823	2251-32	ebgR product, repressor	<i>E. coli</i>
1824	2251-41	neural protein	<i>Drosophila</i>
1825	2251-45	similar to unidentified ORF	<i>E. coli</i>
1826	2251-46	NADH:ubiquinone oxidoreductase b17.2 subunit	<i>Bos taurus</i>
1827	2251-49	tyrosine kinase	<i>Drosophila</i>
1828	2251-50	coded for by <i>C. elegans</i> cDNA yk89e9.5	<i>C. elegans</i>
1829	2251-57	H (tail component;853)	<i>Bacteriophage Lambda</i>
1830	2251-60	Lysyl tRNA Synthetase	<i>Drosophila</i>
1831	2251-62	7,8-diamino-pelargonic acid aminotransferase	<i>E. coli</i>
1832	2251-64	actin related protein	<i>Drosophila</i>
1833	2252-6	discs-large tumor suppressor	<i>Drosophila</i>
1834	2252-16	S-adenosylmethionine decarboxylase	<i>E. coli</i>
1835	2252-17	F52H3.5	<i>E. coli</i>
1836	2252-21	translationally controlled tumor protein	<i>Oryctolagus cuniculus</i>
1837	2252-31	GTP binding protein	<i>Rattus rattus</i>
1838	2252-34	mitochondrial porin transcript 1	<i>Drosophila</i>
1839	2252-38	cuticle protein	<i>Manduca sexta</i>
1840	2252-39	Similarity to Rat CD63 antigen	<i>C. elegans</i>
1841	2252-41	similar to <i>S. cerevisiae</i> Lpg20p	<i>E. coli</i>
1842	2252-48	cut E	<i>E. coli</i>
1843	2252-61	Histone H3	<i>Spisula solidissima</i>
1844	2252-66	ea10 (ssb;122)	<i>Bacteriophage Lambda</i>
1845	2252-71	Mao C protein	<i>E. coli</i>
1846	2252-72	miniparomyosin	<i>Drosophila</i>
1847	2252-73	pherophorin-S	<i>Volvox carteri</i>
1848	2252-80	cyclophilin	<i>Mus musculus</i>
1849	2252-84	alternate gene name yhhG	<i>E. coli</i>
1850	2222-20	nucleoporin Nup98	rat
1851	2222-21	hypothetical protein	<i>Escherichia coli</i>
1852	2222-36	ribosomal protein S11	human

Table I (cont'd)

SEQ ID NO	Name	Genbank Homology	Organism
1853	2222-39	hypothetical protein PFB0315w	<i>Plasmodium falciparans</i>
1854	2222-50	serine/threonine-specific protein k.	<i>Plasmodium falciparans</i>
1855	2222-58	hypothetical protein C25E10.9	<i>C. elegans</i>
1856	2222-64	transporting ATP synthase	<i>bovine</i>
1857	2222-94	tricarboxylate carrier	<i>rat</i>
1858	2218-95	anoxia upregulated protein	<i>Drosophila melanogaster</i>

Table II represents a variety of flea HMT nucleic acid molecules of the present invention. Also cited in Table II are nucleic acid molecules from other organisms which share the closest sequence identity with the cited HMT sequences of the present invention, as determined by a search through the BLAST network as described above.

TABLE II

SEQ ID NO	Name	GenBank Homology	Organism
171	2094-23	mitochondrial ATP synthase, alpha subunit	<i>Drosophila melanogaster</i>
172	2104-20	mitochondrial ATP synthase	<i>Drosophila melanogaster</i>
173	2105-14	ATP synthase gamma-subunit	<i>Homo sapiens</i>
174	2167-72	oligomycin sensitivity conferring protein	<i>Drosophila melanogaster</i>
175	2179-20	ATPase 6	<i>Drosophila melanogaster</i>
176	2193-60	ATP synthase subunit B	<i>Schizaphis graminum</i>
177	2229-41	ATP synthase alpha subunit	<i>D. melanogaster</i>
178	2231-35	9 kD basic protein	<i>D. melanogaster</i>
179	2231-47	ATP synthase alpha-subunit	<i>Bos taurus</i>
180	2232-95	mitochondrial ATP synthase subunit 9	<i>Homo sapiens</i>
181	2084-56	Late embryogenesis abundant protein	<i>Picea glauca</i>
182	2084-36	TGF-beta masking protein/stranded at second	<i>Drosophila melanogaster</i>
183	2086-2	Argonaute protein	<i>Arabidopsis thaliana</i>
184	2196-92	like <i>Drosophila</i> HMPB homeotic proboscipedia protein	<i>C. elegans</i>
185	2092-27	DMDHEM2	<i>Drosophila melanogaster</i>
186	2094-21	SelD protein	<i>Drosophila melanogaster</i>
187	2106-11	Unr	<i>Rattus norvegicus</i>
188	2231-15	cno (canoe)	<i>D. melanogaster</i>
189	2230-79	ALR homologue	<i>D. melanogaster</i>
190	2232-42	saxophone serine-threonine kinase receptor	<i>D. melanogaster</i>
191	2232-68	selenophosphate synthetase	<i>D. melanogaster</i>
192	2088-11	MMTAX107, TAX responsive element binding protein	<i>Mus musculus</i>
193	2089-2	cs Dna J-1	<i>Cucumis sativus</i>
194	2090-7	Lethal (2) TID	<i>Drosophila melanogaster</i>
195	2102-33	monocytic leukaemia zinc finger protein	<i>homo sapiens</i>
196	2105-26	orf1 5' of EpoR	<i>Mus musculus</i>
197	2106-6	contains similarity to EGF-1	<i>C. elegans</i>
198	2106-9	HSP70 protein	<i>Ceratitidis capitata</i>
199	2084-60	82 kD heat shock protein	<i>Drosophila pseudobscura</i>
200	2108-59	PAR domain protein	<i>Drosophila melanogaster</i>
201	2156-34	yk29g12.3	<i>C. elegans</i>
202	2161-17	segmentation protein	<i>Drosophila melanogaster</i>
203	2162-28	heat shock protein 70, hsp70A2	<i>Anopheles albimanus</i>
204	2187-18	Heat shock protein 70	<i>Anopheles albimanus</i>
205	2173-77	Heat shock protein hsp70	<i>D. melanogaster</i>
206	2165-30	nucleolar protein	<i>Drosophila melanogaster</i>
207	2165-59	contains similarity to C4-type zinc fingers	<i>C. elegans</i>
208	2177-80	zinc finger protein	<i>Mus musculus</i>

Table II (cont'd)

SEQ ID NO	Name	GenBank Homology	Organism
209	2181-45	PAR domain protein 1	<i>Drosophila melanogaster</i>
210	2185-9	Heat shock protein-70	<i>Anopheles albimanus</i>
211	2185-82	segmentation protein	<i>Drosophila melanogaster</i>
212	2188-33	transcriptional repressor protein	<i>Drosophila melanogaster</i>
213	2203-18	Mastermind	<i>Drosophila virilis</i>
214	2205-82	high mobility group protein 1a	<i>Chironomus tentans</i>
215	2230-26	DNA repair protein	<i>D. melanogaster</i>
216	2230-71	homologue of seven in absentia	<i>Homo sapiens</i>
217	2230-89	nuclear speckle-type protein, SPOP	<i>Homo sapiens</i>
218	2230-96	heat shock protein	<i>D. melanogaster</i>
219	2231-7	hypothetical protein	<i>S.pombe</i>
220	2231-38	Rad51 homolog	<i>Bombyx mori</i>
221	2231-81	DNA repair protein	<i>D. melanogaster</i>
222	2232-2	cellular nucleic acid binding protein	<i>Xenopus laevis</i>
223	2234-63	heat shock protein 70	<i>Trichoplusia ni</i>
224	2232-77	actin-binding double-zinc-finger protein (abLIM)	<i>Homo sapiens</i>
225	2234-78	DNA-binding protein isoform I	<i>D. melanogaster</i>
226	2084-48	Allantoinase	<i>Rana catesbeiana</i>
227	2085-22	beta-glucuronidase	<i>E. coli</i>
228	2094-24	prolidase = peptidase D/imidopeptidase	<i>Mus musculus</i>
229	2088-43	branched chain alpha-keto acid dehydrogenase E1-beta subunit	<i>Bos taurus</i>
230	2086-29	3-hydroxyisobutyrate dehydrogenase	<i>Dictyostelium discoideum</i>
231	2088-5	Rab 5c protein	<i>Canis familiaris</i>
232	2095-17	cytochrome P-450	<i>Heliothis virescens</i>
233	2102-16	carbamoyl phosphate synthetase II	<i>Plasmodium falciparans</i>
234	2102-48	NADPH cytochrome P450 reductase	<i>Musca domestica</i>
235	2104-15	branched chain alpha-keto acid dehydrogenase	<i>Rattus norvegicus</i>
236	2106-5	Metallothionein	<i>Strongylocentrotus purpuratus</i>
237	2106-47	peroxidoxin-1	<i>Dirofilaria immitis</i>
238	2107-17	tetracycline transporter-like protein	<i>Mus musculus</i>
239	2107-58	allergen Bla g 5 (glutathione-S-transferase)	<i>Blattella germanica</i>
240	2156-58	HAL-3 homologue	<i>Arabidopsis thaliana</i>
241	2195-90	aminoacylase-1	<i>Homo sapiens</i>
242	2171-55	NADPH-ferrihemoprotein reductase	<i>Drosophila melanogaster</i>
243	2169-30	hypothetical protein	<i>Synechocystis sp</i>
244	2169-52	insulin degrading enzyme	<i>Drosophila melanogaster</i>
245	2177-64	3-hydroxyisobutyrate dehydrogenase	<i>Rattus norvegicus</i>
246	2181-69	Endonexin	<i>Bos taurus</i>
247	2138-25	glutamate dehydrogenase	<i>Drosophila melanogaster</i>
248	2230-28	glutathione-S-transferase	<i>Anopheles gambiae</i>
249	2191-8	lactase-phlorizin hydrolase	<i>Rattus rattus</i>
250	2193-52	cytochrome P450	<i>Heliothis virescens</i>
251	2202-35	glutathione-S-transferase	<i>Anopheles gambiae</i>
252	2229-77	glutathione-S-transferase	<i>Anopheles gambiae</i>
253	2229-81	urate oxidase	<i>D. melanogaster</i>
254	2231-42	superoxide dismutase	<i>Cervus elaphus</i>

Table II (cont'd)

EQ ID NO	Name	GenBank Homology	Organism
255	2232-74	allergen Bla g 5	<i>Blattella germanica</i>
256	2234-42	glutathione reductase family	<i>Musca domestica</i>
257	2087-8	cystic fibrosis transmembrane conductance regulator	<i>Homo sapiens</i>
258	2087-23	Nervous system antigen 2	<i>Drosophila melanogaster</i>
259	2091-56	adenosine triphosphatase	<i>Homo sapiens</i>
260	2094-20	sodium pump, alpha subunit	<i>Ctenocephalides felis</i>
261	2095-51	similar to Hrs	<i>C. elegans</i>
262	2103-24	N-methyl-D-aspartate receptor-associated protein	<i>Drosophila melanogaster</i>
263	2105-55	inward rectifying K channel	<i>Sus scrofa</i>
264	2105-63	EF-hand Ca ²⁺ binding protein p22	<i>Rattus norvegicus</i>
265	2106-62	Dents disease candidate gene product	<i>Homo sapiens</i>
266	2167-50	PKD1 (polycystic kidney disease 1)	<i>Fugu rubripes</i>
267	2185-37	copper-transporting ATPase	<i>Archaeoglobus fulgidus</i>
268	2193-29	TrkG Potassium transport protein	<i>E. coli</i>
269	2195-33	silicon transporter	<i>Cylindrotheca fusiformis</i>
270	2202-16	similarity to human sulfate anion transporter	<i>C. elegans</i>
271	2230-2	sulfate transporter	<i>Arabidopsis thaliana</i>
272	2230-69	mitochondrial porin	<i>D. melanogaster</i>
273	2231-22	muscarinic acetylcholine receptor	<i>D. melanogaster</i>
274	2231-24	p97 subunit of 15S Mg(2+)-ATPase	<i>Xenopus laevis</i>
275	2231-32	anion transporting ATPase	<i>Aquifex aeolicus</i>
276	2231-70	sulfate permease	<i>Schizosaccharomyces pombe</i>
277	2231-94	putative Na/H exchanger	<i>S. pombe</i>
278	2233-6	plasma membrane Ca ²⁺ -ATPase 2	<i>Mus musculus</i>
279	2233-24	chloride channel gene, CLIC2	<i>Homo sapiens</i>
280	2085-61	beta-type protein kinase C	<i>Bos taurus</i>
281	2089-20	cGMP-dependent protein kinase	<i>Drosophila melanogaster</i>
282	2092-12	Btk	<i>Homo sapiens</i>
283	2093-64	Receptor-like protein tyrosine phosphatase	<i>Drosophila melanogaster</i>
284	2095-31	lrrt (lms-related tyrosine kinase gene)	<i>Homo sapiens</i>
285	2094-58	casein kinase II beta	<i>Oryctolagus cuniculus</i>
286	2103-54	ORF YGL084c	<i>Saccharomyces cerevisiae</i>
287	2106-42	protein phosphatase epsilon subunit	<i>Homo sapiens</i>
288	2156-5	serine/threonine kinase	<i>Rattus norvegicus</i>
289	2157-95	cGMP-dependent protein kinase	<i>Drosophila melanogaster</i>
290	2165-80	ABL gene product	<i>Gallus gallus</i>
291	2165-63	diadenosine tetraphosphatase	<i>Homo sapiens</i>
292	2167-17	adenylate cyclase	<i>S. cerevisiae</i>
293	2177-44	serine/threonine kinase	<i>C. elegans</i>
294	2188-16	weakly similar to serine/threonine kinase	<i>C. elegans</i>
295	2191-60	carbohydrate kinase, pfkB family	<i>Archaeoglobus fulgidus</i>
296	2195-22	protein kinase	<i>Drosophila melanogaster</i>
297	2196-30	calcium-dependent protein kinase	<i>A. thaliana</i>
298	2205-83	protein kinase/endoribonuclease (IRE1)	<i>Homo sapiens</i>
299	2205-87	receptor tyrosine phosphatase	<i>Hirudo medicinalis</i>
300	2229-11	magnesium-dependent calcium inhibitable phosphatase	<i>Bos taurus</i>

Table II (cont'd)

SEQ ID NO	Name	GenBank Homology	Organism
301	2229-29	phosphoglycerate kinase	<i>Schistosoma mansoni</i>
302	2229-74	pyruvate kinase	<i>D. melanogaster</i>
303	2230-55	serine/threonine specific protein phosphatase 4	<i>D. melanogaster</i>
304	2230-57	stress activated MAP kinase kinase 3	<i>D. melanogaster</i>
305	2231-64	alkaline phosphatase	<i>D. melanogaster</i>
306	2231-91	olynucleotide phosphorylase	<i>Yersinia enterocolitica</i>
307	2232-43	protein kinase PkwA	<i>Thermomonospora curvata</i>
308	2234-94	serine/threonine kinase ULK1	<i>Homo sapiens</i>
309	2085-18	Pyridoxamine phosphate oxidase	<i>C. elegans</i>
310	2094-13	sphingomyelin phosphodiesterase	<i>Mus musculus</i>
311	2105-47	apolipoprotein E receptor 2	<i>Homo sapiens</i>
312	2092-38	squalene synthetase	<i>Homo sapiens</i>
313	2094-25	fatty acid synthetase	<i>Rattus norvegicus</i>
314	2089-32	coproporphyrinogen oxidase	<i>Homo sapiens</i>
315	2085-46	HADHB mitochondrial trifunctional protein beta subunit	<i>Homo sapiens</i>
316	2104-56	pyridoxal kinase	<i>Homo sapiens</i>
317	2107-30	Phosphomevalonate kinase	<i>Homo sapiens</i>
318	2154-70	very-long chain acyl-CoA dehydrogenase	<i>Mus musculus</i>
319	2191-85	stearyl-CoA desaturase	<i>Cyprinus carpio</i>
320	2192-44	very-long-chain Acyl-CoA dehydrogenase	<i>Rattus norvegicus</i>
321	2195-55	Similar to LDL receptor-related protein	<i>C. elegans</i>
322	2229-82	lipase-3	<i>D. melanogaster</i>
323	2231-59	Phosphatidylethanolamine-binding protein	<i>Macaca fascicularis</i>
324	2233-25	similarity to yeast ethanolaminephosphotransferase	<i>C. elegans</i>
325	2233-41	cellular retinoic acid binding protein (mCRABP)	<i>Manduca sexta</i>
326	2087-61	I allergen	<i>Lepidoglyphus destructor</i>
327	2087-41	chloroquine resistance candidate protein	<i>Plasmodium falciparum</i>
328	2089-51	Xenopus Bf B	<i>Xenopus laevis</i>
329	2086-58	repeat organellar protein	<i>Plasmodium falciparum</i>
330	2090-45	heat shock cognate protein	<i>Drosophila melanogaster</i>
331	2104-23	40 kDa heat shock chaperone protein	<i>Deinococcus</i>
332	2107-26	Luciferase	<i>Photuris pennsylvanica</i>
333	2162-46	F20D1.9	<i>C. elegans</i>
334	2162-49	PKR inhibitor P58	<i>Bos taurus</i>
335	2162-93	GroES homologue	<i>Rickettsia</i>
336	2171-46	NH2 terminus uncertain	<i>Leishmania tarentolae</i>
337	2089-10	beta adaptin	<i>Drosophila melanogaster</i>
338	2229-24	non-functional folate binding protein	<i>Homo sapiens</i>
339	2229-25	calmodulin B	<i>Halocynthia roretzi</i>
340	2229-31	putative T1/ST2receptor binding protein	<i>C. elegans</i>
341	2229-36	alpha-crystallin cognate protein 25	<i>Plodia interpunctella</i>
342	2229-40	Defensin	<i>Apis mellifera</i>
343	2229-86	glutamate—ammonia ligase	<i>D. melanogaster</i>
344	2231-49	melanoma-associated antigen ME491	<i>Homo sapiens</i>
345	2231-76	histone C	<i>Drosophila virilis</i>
346	2232-65	translationally controlled tumor protein	<i>Oryctolagus cuniculus</i>

Table II (cont'd)

SEQ ID NO	Name	GenBank Homology	Organism
347	2232-84	Apyrase	<i>Aedes aegypti</i>
348	2232-85	KIAA0124	<i>Homo sapiens</i>
349	2233-59	Glutamine-dependent carbamoyl-phosphate synthase	<i>C. elegans</i>
350	2233-86	ANG12 precursor	<i>Anopheles gambiae</i>
351	2234-11	tissue specific secretory protein	<i>Pan troglodytes</i>
352	2234-76	methionine adenosyltransferase	<i>D. melanogaster</i>
353	2089-13	Synaptic vesicle protein 2 form B	<i>Rattus norvegicus</i>
354	2159-52	glycoprotein 56	<i>Rattus norvegicus</i>
355	2084-6	CLN3; homologue of the gene underlying Batten disease	<i>Mus musculus</i>
356	2085-10	Amphiphysin	<i>Gallus gallus</i>
357	2156-39	glycoprotein 55	<i>Rattus norvegicus</i>
358	2104-59	Transmembrane transporter	<i>Discopyge ommata</i>
359	2105-9	insect intestinal mucin II	<i>Trichoplusia ni</i>
360	2106-14	kinesin-like protein	<i>D. melanogaster</i>
361	2107-45	Lazarillo precursor	<i>Schistocerca americana</i>
362	2156-3	clathrin-associated protein	<i>Mus musculus</i>
363	2161-46	neural variant mena+ protein	<i>Mus musculus</i>
364	2171-92	Malvolio	<i>Drosophila melanogaster</i>
365	2175-18	homolog of SYT – synaptotagmin	<i>Mus musculus</i>
366	2177-10	GABA receptor subunit (Rdl)	<i>Aedes aegypti</i>
367	2181-10	neurexin IV	<i>Drosophila melanogaster</i>
368	2191-92	synaptic vesicle protein 2B	<i>Rattus norvegicus</i>
369	2229-18	Synaptic vesicle protein 2A	<i>Rattus norvegicus</i>
370	2194-38	gamma-subunit of mouse nerve growth factor	<i>Mus musculus</i>
371	2230-60	lin-7-C	<i>Rattus norvegicus</i>
372	2230-81	PDZ domain protein	<i>Homo sapiens</i>
373	2234-5	Gcap1 gene product	<i>Mus musculus</i>
374	2234-55	Gcap1 gene product	<i>Mus musculus</i>
375	2234-71	Gcap1 gene product	<i>Mus musculus</i>
376	2085-34	Liver-specific transport protein	<i>Rattus norvegicus</i>
377	2087-15	polyspecific organic cation transporter	<i>Homo sapiens</i>
378	2204-80	transmembrane transporter	<i>Discopyge ommata</i>
379	2093-39	liver-specific transport protein	<i>Rattus norvegicus</i>
380	2093-46	similar to monocarboxylate transporter family	<i>C. elegans</i>
381	2092-22	similar to matrin F/G	<i>C. elegans</i>
382	2103-50	Unknown	<i>Drosophila melanogaster</i>
383	2103-51	organic cation transporter	<i>Rattus norvegicus</i>
384	2197-35	renal organic cation transporter	<i>Oryctolagus cuniculus</i>
385	2156-17	sulfate anion transporter	<i>Manduca sexta</i>
386	2166-84	LX1	<i>Mus musculus</i>
387	2167-94	MCT (monocarboxylate transporter)	<i>Homo sapiens</i>
388	2196-83	renal organic cation transporter	<i>Oryctolagus cuniculus</i>
389	2229-83	similarity to monocarboxylate transporter 1	<i>C. elegans</i>
390	2231-89	Golgi 4-transmembrane spanning transporter MTP	<i>Mus musculus</i>
391	2158-8	phosphate carrier protein	<i>C. elegans</i>
392	2085-14	ADP/ATP translocase	<i>Drosophila melanogaster</i>

Table II (cont'd)

SEQ ID NO	Name	GenBank Homology	Organism
393	2085-17	Na ⁺ -dependent inorganic phosphatase cotransporter	<i>Drosophila melanogaster</i>
394	2088-38	ADP/ATP translocase	<i>Bos taurus</i>
395	2092-50	ADP/ATP translocase	<i>Drosophila melanogaster</i>
396	2104-21	Na ⁽⁺⁾ -dependent inorganic phosphate cotransporter	<i>Drosophila melanogaster</i>
397	2121-55	phosphate carrier protein	<i>C. elegans</i>
398	2105-64	phosphate carrier protein	<i>Homo sapiens</i>
399	2102-6	ZK512.6	<i>C. elegans</i>
400	2108-27	mitochondrial phosphate carrier protein	<i>Homo sapiens</i>
401	2194-63	mitochondrial phosphate transporter	<i>Rattus norvegicus</i>
402	2196-14	phosphate/triose-phosphate translocator precursor	<i>C. elegans</i>
403	2204-11	EST clone	<i>D. melanogaster</i>
404	2085-16	Chymotrypsin I	<i>Anopheles gambiae</i>
405	2085-54	Chymotrypsin II	<i>Anopheles gambiae</i>
406	2086-12	Plasminogen	<i>Homo sapiens</i>
407	2086-18	Trypsin eta	<i>Drosophila melanogaster</i>
408	2090-21	Trypsin	<i>Manduca sexta</i>
409	2092-15	Alp1	<i>Cochliobolus carbonum</i>
410	2102-11	vitellin-degrading protease	<i>Bombyx mori</i>
411	2102-17	Chymotrypsin II	<i>Anopheles gambiae</i>
412	2102-51	chymotrypsin-like protease	<i>Anopheles gambiae</i>
413	2103-31	Beta trypsin	<i>Drosophila erecta</i>
414	2107-22	Factor IX	<i>Rattus norvegicus</i>
415	2108-29	Trypsin	<i>Anopheles stephensi</i>
416	2157-15	Trypsin	<i>Choristoneura fumiferana</i>
417	2160-34	Aminopeptidase	<i>Synechocystis</i>
418	2160-36	E01G6.1	<i>C. elegans</i>
419	2103-62	plasminogen activator inhibitor 2	<i>Mus musculus</i>
420	2167-36	factor IX	<i>Oryctolagus cuniculus</i>
421	2167-67	Alp1	<i>Cochliobolus carbonum</i>
422	2169-51	Trypsin	<i>Aedes aegypti</i>
423	2181-27	Chymotrypsin BII	<i>Penaeus vannamei</i>
424	2185-69	plasma prekallikrein	<i>Homo sapeins</i>
425	2187-20	pre-procathepsin L	<i>Paragonimus westermani</i>
426	2188-45	vitellin-degrading protease	<i>Bombyx mori</i>
427	2192-91	late trypsin precursor	<i>Culex pipiens quinquefasciatus</i>
428	2196-10	SPC2	<i>Branchiostoma californiensis</i>
429	2196-88	Trypsin	<i>Anopheles stephensi</i>
430	2204-9	carnitine/choline acetyltransferase	<i>C. elegans</i>
431	2229-7	jota trypsin	<i>D. melanogaster</i>
432	2229-22	Trypsin	<i>Anopheles gambiae</i>
433	2229-89	Trypsin	<i>Anopheles gambiae</i>
434	2229-94	late trypsin precursor	<i>Culex pipiens quinquefasciatus</i>
435	2230-59	Chymotrypsin 1	<i>Anopheles gambiae</i>
436	2230-67	carboxypeptidase A	<i>Drosophila heteroneura</i>
437	2231-62	aminopeptidase N	<i>Sus scrofa</i>

Table II (cont'd)

SEQ ID NO	Name	GenBank Homology	Organism
438	2231-74	limulus factor C serine protease	<i>Tachypleus tridentatus</i>
439	2232-15	cysteine proteinase	<i>Sitophilus zeamais</i>
440	2232-25	Carboxypeptidase	<i>Simulium vitatum</i>
441	2232-33	putative aspartic protease	<i>Brassica oleracea</i>
442	2233-46	aminopeptidase N	<i>Pleuronectes americanus</i>
443	2233-85	chymotrypsin 1	<i>Anopheles gambiae</i>
444	2233-90	Trypsin	<i>Anopheles stephensi</i>
445	2233-94	preprechymotrypsin 1	<i>Penaeus vannamei</i>
446	2234-29	chymotrypsin-like protease precursor	<i>Aedes aegypti</i>
447	2234-58	Putative	<i>C. elegans</i>
448	2234-61	carboxylesterase precursor	<i>Aphis gossypii</i>
449	2234-68	serine protease inhibitor I	<i>Schistocerca gregaria</i>
450	2084-35	Integral membrane protein	<i>Mus musculus</i>
451	2086-45	similar to beta-ureidopropionase of Rat	<i>C. elegans</i>
452	2087-54	Cyclin	<i>Mus musculus</i>
453	2088-22	Esp 8	<i>Mus musculus</i>
454	2091-16	contains similarity to EGF-like domains	<i>C. elegans</i>
455	2091-29	multiple exostosis-like protein	<i>Homo sapiens</i>
456	2091-30	apoptosis 1 inhibitor	<i>Drosophila melanogaster</i>
457	2092-33	KIAA0023 (putitive oncogene)	<i>Homo sapiens</i>
458	2095-35	G coupled receptor	<i>C. elegans</i>
459	2095-3	Go (heterotrimeric guanyl nucleotide binding protein alpha subunit)	<i>Manduca sexta</i>
460	2085-4	gp 150 protein	<i>Drosophila melanogaster</i>
461	2103-28	leukotriene A4 hydrolase	<i>Rattus sp.</i>
462	2105-62	putitive orf	<i>Homo sapiens</i>
463	2107-6	activator protein	<i>Drosophila melanogaster</i>
464	2107-28	platelet-endothelial tetraspan antigen 3	<i>Homo sapiens</i>
465	2189-3	oligopeptidase A (prC)	<i>Haemophilis influenzae</i>
466	2156-54	fibroblast growth factor receptor	<i>Xenopus laevis</i>
467	2160-92	contains similarity to EGF-like domains	<i>C. elegans</i>
468	2160-65	weak similarity to the drosophila hyperplastic disc protein	<i>C. elegans</i>
469	2165-53	inositol triphosphate receptor	<i>Rattus norvegicus</i>
470	2166-22	placental protein 11	<i>Homo sapiens</i>
471	2166-92	elongation factor 1 alpha-like	<i>Drosophila melanogaster</i>
472	2181-34	DSch	<i>Drosophila melanogaster</i>
473	2192-65	STAM, signal transducing adaptor molecule	<i>Homo sapiens</i>
474	2194-24	ATPases associated with various cellular activities (AAA family)	<i>Arabidopsis thaliana</i>
475	2196-75	similar to cell division control protein	<i>C. elegans</i>
476	2230-38	EST clone	<i>S. cerevisiae</i>
477	2230-39	NTPase	<i>D. melanogaster</i>
478	2230-66	adenylyl cyclase aggregation protein	<i>Dictyostelium discoideum</i>
479	2230-80	sphingomyelin phosphodiesterase	<i>C. elegans</i>
480	2231-29	nuclear antigen H731	<i>Homo sapiens</i>
481	2231-40	suppressor of actin mutation 2	<i>Homo sapiens</i>
482	2231-66	DET1	<i>Arabidopsis thaliana</i>
483	2232-7	Calreticulin	<i>D. melanogaster</i>
484	2232-38	activator protein	<i>D. melanogaster</i>

Table II (cont'd)

SEQ ID NO	Name	GenBank Homology	Organism
485	2232-69	ornithine decarboxylase	<i>Gallus gallus</i>
486	2233-32	similar bHLH-PAS	<i>D. melanogaster</i>
487	2233-45	rab1	<i>D. melanogaster</i>
488	2234-2	C10A gene product	<i>Mus musculus</i>
489	2234-72	QM homolog	<i>D. melanogaster</i>
490	2084-17	Integral membrane protein	<i>Herpesvirus-2</i>
491	2091-4	endomembrane protien EMP70 precursor isolog	<i>Arabidopsis thaliana</i>
492	2102-45	Ylr251wp	<i>Saccharomyces cerevisiae</i>
493	2162-68	220 kDa silk protein	<i>Chironomus thummi</i>
494	2160-47	precursor HT7 protein	<i>Gallus gallus</i>
495	2161-12	peritrophin 95 precursor	<i>Lucilia cuprina</i>
496	2161-15	yk86g11.5	<i>C. elegans</i>
497	2171-12	51A surface protein	<i>Paramecium tetraurelia</i>
498	2173-18	hypothetical - mitochondrial membrane transport protein	<i>Schizosaccharomyces pombe</i>
499	2087-32	est sequence	<i>C. elegans</i>
500	2091-19	Similar to P. aeruginosa hypothetical protein	<i>C. elegans</i>
501	2192-86	tyrosine kinase	<i>Drosophila melanogaster</i>
502	2086-42	M04B2.4	<i>C. elegans</i>
503	2088-16	glycoprotein 330	<i>C. elegans/Human</i>
504	2088-39	EST sequence	<i>Arabidopsis thaliana</i>
505	2088-57	Yer 126cp	<i>Saccharomyces cerevisiae</i>
506	2089-25	similar to S. cerevisiae hypothetical protein YKL166	<i>C. elegans</i>
507	2090-3	EST sequence	<i>Saccharomyces cerevisiae</i>
508	2090-53	EST sequence	<i>C. elegans</i>
509	2095-20	Chloroplast ORF	<i>Marchantia polymorpha</i>
510	2102-28	similar to S. cerevisiae hypothetical protein YKL166	<i>C. elegans</i>
511	2102-55	D1054.3	<i>C. elegans</i>
512	2102-58	ZC513.5 gene product	<i>C. elegans</i>
513	2105-44	E 1087 protein	<i>Saccharomyces cerevisiae</i>
514	2109-24	F11C1.5	<i>C. elegans</i>
515	2154-21	disulfide-like protein	<i>Acanthamoeba castellanii</i>
516	2156-6	ZK470.1	<i>C. elegans</i>
517	2156-18	B111A3	<i>Ovis aries</i>
518	2156-27	AFR1	<i>S. cerevisiae</i>
519	2165-94	COS41.8	<i>Ciona intestinalis</i>
520	2167-65	EST sequence, function unknown	<i>C. elegans</i>
521	2171-93	KIAA0160	<i>Homo sapiens</i>
522	2175-45	ORF YJR83.18	<i>S. cerevisiae</i>
523	2185-66	pps4	<i>Plasmodium falciparum</i>
524	2195-40	C27C12.4	<i>C. elegans</i>
525	2196-20	glycoprotein A	<i>Pneumocystis carinii</i>
526	2205-89	BKRF1 encodes EBNA-1 protein	<i>Epstein Barr virus</i>
527	2229-19	D4L	<i>Variola virus</i>
528	2230-35	KIAA0747	<i>Homo sapiens</i>
529	2231-8	I3	<i>Mus musculus</i>
530	2231-78	unknown protein	<i>Arabidopsis thaliana</i>

Table II (cont'd)

SEQ ID NO	Name	GenBank Homology	Organism
531	2232-49	Similarity to Yeast hypothetical 52.9 KD protein	<i>C. elegans</i>
532	2232-52	tetratricopeptide repeat protein (tpr2)	<i>Homo sapiens</i>
533	2233-5	similar to <i>Saccharomyces cerevisiae</i> SCD6 protein	<i>C. elegans</i>
534	2233-22	cDNA EST yk486b9.3	<i>C. elegans</i>
535	2233-93	CDC27Dm	<i>D. melanogaster</i>
536	2084-34	Immune suppressor/V-ATPase 115 kDa subunit	<i>Mus musculus</i>
537	2086-30	V-ATPase A-subunit	<i>Aedes aegypti</i>
538	2087-45	H+ ATPase	<i>Drosophila melanogaster</i>
539	2088-55	40-kDa-V-ATPase subunit	<i>Manduca sexta</i>
540	2088-62	vacuolar ATPase subunit A	<i>Drosophila melanogaster</i>
541	2091-26	proton-ATPase-like protein	<i>Homo sapiens</i>
542	2091-31	vacuolar ATPase subunit A	<i>Drosophila melanogaster</i>
543	2092-20	vacuolar ATPase 115 kDa subunit	<i>Homo sapiens</i>
544	2095-18	similar to <i>S. cerevisiae</i> vacuolar H(+)-ATPase 54 kD subunit	<i>C. elegans</i>
545	2095-54	H (+)-transporting ATPase subunit B	<i>Manduca sexta</i>
546	2108-8	similar to <i>S. cerevisiae</i> 54 kDa V-ATPase subunit	<i>C. elegans</i>
547	2154-36	V-ATPase subunit E	<i>Drosophila melanogaster</i>
548	2154-76	V-ATPase subunit A (new fragment)	<i>Aedes aegypti</i>
549	2166-32	V-ATPase C subunit	<i>Drosophila melanogaster</i>
550	2166-33	vacuolar (V-type) H(+)-ATPase B subunit	<i>Helicoverpa virescens</i>
551	2166-90	beta subunit of ATPase	<i>Schizaphis graminum</i>
552	2161-5	ATPase I	<i>Plasmodium falciparum</i>
553	2171-24	similar to V-ATPase 116kd subunit	<i>C. elegans</i>
554	2169-82	V-ATPase subunit E	<i>Drosophila melanogaster</i>
555	2187-36	V-ATPase membrane sector associated protein M8-9	<i>Homo sapiens</i>
556	2188-91	V-ATPase subunit A	<i>Candida tropicalis</i>
557	2230-88	vacuolar ATPase G subunit	<i>Manduca sexta</i>
558	2232-61	V-ATPase subunit C	<i>D. melanogaster</i>
559	2086-52	Penelope transposable element ORF	<i>Drosophila virilis</i>
560	2103-2	genome polyprotein gene product	<i>Plum pox virus</i>
561	2106-8	pol protein	<i>Human T-cell lymphotropic virus type 2</i>
562	2108-41	reverse transcriptase, Doc retroposon	<i>Drosophila melanogaster</i>
563	2202-28	Polyprotein	<i>Hepatitis virus C</i>
564	2165-95	DNA polymerase	<i>Choristoneura biennis entomopoxvirus</i>
565	2169-81	reverse transcriptase	<i>Drosophila melanogaster</i>
566	2181-36	reverse transcriptase	<i>Anopheles gambiae</i>
1416	2240-4	alpha-L-fucosidase precursor	<i>Homo sapiens</i>
1417	2240-11	estrogen related receptor alpha	<i>Mus musculus</i>
1418	2240-14	NADH:ubiquinone oxidoreductase 51-kD subunit	<i>Homo sapiens</i>
1419	2240-17	peritrophin 1	<i>Anopheles gambiae</i>
1420	2240-19	small GTPase rac1b	<i>Homo sapiens</i>
1421	2240-23	Symplekin	<i>Homo sapiens</i>

Table II (cont'd)

SEQ ID NO	Name	GenBank Homology	Organism
1422	2240-26	ribosomal protein L30	<i>Bos taurus</i>
1423	2240-28	60S Ribosomal Protein RPL10A	<i>Homo sapiens</i>
1424	2240-29	KIN17 protein	<i>D. melanogaster</i>
1425	2240-31	eukaryotic initiation factor 4 gamma	<i>Homo sapiens</i>
1426	2240-38	ornithine decarboxylase antizyme	<i>D. melanogaster</i>
1427	2240-44	electron transfer flavoprotein	<i>Rattus norvegicus</i>
1428	2240-53	EST clone	<i>C. elegans</i>
1429	2240-55	glutathione reductase family	<i>Musca domestica</i>
1430	2240-58	chymotrypsin-like serine protease	<i>C. felis</i>
1431	2240-63	ferritin subunit 1	<i>D. melanogaster</i>
1432	2240-64	vacuolar ATPase subunit B	<i>D. melanogaster</i>
1433	2240-66	chaperonin containing TCP-1 delta	<i>Fugu rubripes</i>
1434	2240-70	1-acyl-glycerol-3-phosphate acyltransferase	<i>Zea mays</i>
1435	2240-71	EST clone AL021106	<i>D. melanogaster</i>
1436	2240-72	376aa long hypothetical dehydrogenase	<i>Pyrococcus horikoshii</i>
1437	2240-77	chymotrypsin-like serine protease	<i>C. felis</i>
1438	2240-80	EST clone	<i>C. elegans</i>
1439	2240-83	chymotrypsin-like serine protease	<i>C. felis</i>
1440	2240-90	cytochrome P450	<i>D. melanogaster</i>
1441	2240-93	enhancer-trap-locus-1	<i>Mus musculus</i>
1442	2240-94	glycerol-3-phosphate dehydrogenase	<i>Ceratitis capitata</i>
1443	2241-3	FS-H precursor	<i>Ctenocephalides felis</i>
1444	2241-5	trypsin-like serine protease	<i>Ctenocephalides felis</i>
1445	2241-7	myospheroid protein	<i>D. melanogaster</i>
1446	2241-10	Sam50	<i>D. melanogaster</i>
1447	2241-12	NADH dehydrogenase subunit 2	<i>Chorthippus parallelus</i>
1448	2241-15	putative protein	<i>Arabidopsis thaliana</i>
1449	2241-16	contains EGF-like repeats	<i>C. elegans</i>
1450	2241-20	Gcap1 gene product	<i>Mus musculus</i>
1451	2241-25	Na(+)-dependent inorganic phosphate cotransporter	<i>D. melanogaster</i>
1452	2241-31	D4L	<i>Variola virus</i>
1453	2241-36	plenty-of-prolines-101; POP101; SH3-philo-protein	<i>Mus musculus</i>
1454	2241-40	EF-1-alpha	<i>D. melanogaster</i>
1455	2241-44	F1-ATP synthase epsilon-subunit	<i>Ipomoea batatas</i>
1456	2241-54	ribosomal protein S28	<i>Homo sapiens</i>
1457	2241-55	Y-box protein	<i>D. melanogaster</i>
1458	2241-56	short-chain alcohol dehydrogenase	<i>Homo sapiens</i>
1459	2241-59	contains 3 cysteine rich repeats	<i>C. elegans</i>
1460	2241-60	muscle type phosphofructokinase	<i>Canis familiaris</i>
1461	2241-61	Heat shock protein 82	<i>Mus musculus</i>
1462	2241-65	chymotrypsin-like protease	<i>C. felis</i>
1463	2241-66	Oligosaccharyltransferase subunit	<i>D. melanogaster</i>
1464	2241-70	EST clone	<i>D. melanogaster</i>
1465	2241-72	failed axon connections protein	<i>D. melanogaster</i>
1466	2241-74	Enolase	<i>Hymenolepis diminuta</i>
1467	2241-78	multiple exostosis 2 protein	<i>Mus musculus</i>
1468	2241-80	Protein on Ecdysone Puffs	<i>D. melanogaster</i>

Table II (cont'd)

SEQ ID NO	Name	GenBank Homology	Organism
1469	2241-82	paramyosin	<i>D. melanogaster</i>
1470	2241-83	beta-tubulin	<i>Bombyx mori</i>
1471	2241-84	natural killer cell enhancing factor	<i>Cyprinus carpio</i>
1472	2241-86	similar to MYOTUBULARIN-RELATED PROTEIN	<i>Homo sapiens</i>
1473	2241-87	Renin	<i>Rattus norvegicus</i>
1474	2241-90	Myophilin	<i>Echinococcus multilocularis</i>
1475	2243-10	alpha-actinin	<i>D. melanogaster</i>
1476	2243-11	monocarboxylate transporter	<i>Homo sapiens</i>
1477	2243-13	yk278a10.3	<i>C. elegans</i>
1478	2243-15	selenium donor protein	<i>Homo sapiens</i>
1479	2243-18	acetyl-CoA synthetase	<i>D. melanogaster</i>
1480	2243-20	cytochrome P450 CYP12A3	<i>Musca domestica</i>
1481	2243-22	NADH dehydrogenase subunit 4	<i>Anopheles arabiensis</i>
1482	2243-27	Polyubiquitin	<i>Cricetulus griseus</i>
1483	2243-28	Moesin	<i>D. melanogaster</i>
1484	2243-31	QM protein	<i>Bombyx mandarina</i>
1485	2243-32	Sec23 protein	<i>Homo sapiens</i>
1486	2243-37	truncated protein	<i>S. cerevisiae</i>
1487	2243-38	Projectin	<i>D. melanogaster</i>
1488	2243-39	Unknown	<i>Homo sapiens</i>
1489	2243-41	similar to enoyl-CoA hydratase	<i>C. elegans</i>
1490	2243-45	similar to dehydrogenase	<i>C. elegans</i>
1491	2243-46	trypsin-like serine protease	<i>C. felis</i>
1492	2243-48	Merlin	<i>Rattus norvegicus</i>
1493	2243-52	GTP-specific succinyl-CoA synthetase beta subunit	<i>Homo sapiens</i>
1494	2243-53	sod protein (superoxide dismutase)	<i>Drosophila virilis</i>
1495	2243-54	trypsin-like serine protease	<i>C. felis</i>
1496	2243-61	chymotrypsin-like serine protease	<i>C. felis</i>
1497	2243-66	Tag B	<i>Dictyostelium discoideum</i>
1498	2243-67	hypothetical protien	<i>Arabidopsis thaliana</i>
1499	2243-68	heat shock cognate protein 70	<i>Trichoplusia ni</i>
1500	2243-72	TRIP-1 homologue	<i>D. melanogaster</i>
1501	2243-73	cytosolic NADP-dependent isocitrate dehydrogenase	<i>Microtis mexicanis</i>
1502	2243-86	progesterone-induced protein	<i>Oryctolagus cuniculus</i>
1503	2243-87	Bmsqd-2	<i>Bombyx mori</i>
1504	2243-91	sodium/iodide symporter	<i>Homo sapiens</i>
1505	2243-92	ORF2	<i>Acidianus ambivalens</i>
1506	2243-94	lysosomal beta-galactosidase	<i>Felis cattus</i>
1507	2244-12	tropomyosin isoform 127	<i>D. melanogaster</i>
1508	2244-19	KIAA0181	<i>Homo sapiens</i>
1509	2244-23	plasma membrane calcium ATPase isoform 1	<i>Homo sapiens</i>
1510	2244-29	NADH dehydrogenase	<i>Bos taurus</i>
1511	2244-44	glutamate dehydrogenase	<i>D. melanogaster</i>
1512	2244-54	spliceosomal protein	<i>D. melanogaster</i>
1513	2244-59	ciliary body glutathione peroxidase	<i>Bos taurus</i>

Table II (cont'd)

SEQ ID NO	Name	GenBank Homology	Organism
1514	2244-61	pyridoxal-phosphate-dependent aminotransferases	<i>C. elegans</i>
1515	2244-64	Unknown	<i>Rattus norvegicus</i>
1516	2244-69	trypsin-like serine protease	<i>C. felis</i>
1517	2244-71	peritrophin 1	<i>Anopheles gambiae</i>
1518	2244-75	NADH dehydrogenase subunit 5	<i>Anopheles gambiae</i>
1519	2244-84	microsomal epoxide hydrolase	<i>Rattus norvegicus</i>
1520	2244-86	C54G7.2 gene product	<i>C. elegans</i>
1521	2244-91	Aminopeptidase N	<i>Plutella xylostella</i>
1522	2253-2	cytochrome C oxidase	<i>H. sapiens</i>
1523	2253-13	Initiation factor 5A	<i>Gallus gallus</i>
1524	2253-14	protein phosphatase type 2A catalytic subunit	<i>Bos taurus</i>
1525	2253-16	myosin light chain 2	<i>D. melanogaster</i>
1526	2253-18	cDNA EST yk462d1.5	<i>C. elegans</i>
1527	2253-19	ribosomal protein S10	<i>H. sapiens</i>
1528	2253-24	aspartyl(asparaginy)beta-hydroxylase, HAAH	<i>H. sapiens</i>
1529	2253-27	larval and adult myosin heavy chain	<i>D. melanogaster</i>
1530	2253-33	nervous system antigen 2	<i>D. melanogaster</i>
1531	2253-36	dJ366N23.2	<i>H. sapiens</i>
1532	2253-40	hrp48.1	<i>D. melanogaster</i>
1533	2253-42	ZnT-1	<i>Mus musculus</i>
1534	2253-43	aminopeptidase N	<i>Manduca sexta</i>
1535	2253-56	Profilin	<i>D. melanogaster</i>
1536	2253-59	T26A5.	<i>H. sapiens</i>
1537	2253-68	NADH-ubiquinone oxidoreductase 42 kDa subunit	<i>D. melanogaster</i>
1538	2253-78	glycine-rich protein	
1539	2253-81	5'-nucleotidase	<i>H. sapiens</i>
1540	2253-86	glutathione S-transferase	<i>Anopheles gambiae</i>
1541	2253-87	ferritin subunit 1	<i>D. melanogaster</i>
1542	2253-92	myosin light chain 2	<i>D. melanogaster</i>
1543	2253-94	xylose-proton symport	<i>E. coli</i>
1544	2254-4	mature-parasite-infected erythrocyte surface antigen	<i>P. falciparum</i>
1545	2254-6	Fo-ATP synthase subunit b	<i>D. melanogaster</i>
1546	2254-13	similar to Arabidopsis thaliana male sterility protein 2	<i>C. elegans</i>
1547	2254-17	CLN3 protein	<i>H. sapiens</i>
1548	2254-21	YbgG	<i>B. subtilis</i>
1549	2254-25	peroxisomal protein	<i>Synechocystis sp</i>
1550	2254-27	Glutaminase	<i>Rattus norvegicus</i>
1551	2254-30	tartan protein	<i>D. melanogaster</i>
1552	2254-33	leucine zipper-EF-hand containing transmembrane protein 1	<i>H. sapiens</i>
1553	2254-39	similar to helicase	<i>C. elegans</i>
1554	2254-43	muscle myosin heavy chain	<i>D. melanogaster</i>
1555	2254-45	putative nicotinate phosphoribosyltransferase	<i>N. tabacum</i>
1556	2254-51	60S ribosomal protein	<i>Mus musculus</i>
1557	2254-54	small nuclear riboprotein Sm-D	<i>H. sapiens</i>
1558	2254-55	nucleoside diphosphate kinase	<i>Salmo salar</i>

Table II (cont'd)

SEQ ID NO	Name	GenBank Homology	Organism
1559	2254-60	serine protease	<i>C. felis</i>
1560	2254-63	myospheroid protein	<i>D. melanogaster</i>
1561	2254-65	Carboxylesterase	<i>Anisopteromalus calandrae</i>
1562	2254-66	siah binding protein 1	<i>H. sapiens</i>
1563	2254-70	vacuolar ATPase, subunit M9.7	<i>Manduca sexta</i>
1564	2254-83	Fumarylacetoacetate hydrolase	<i>Rattus norvegicus</i>
1565	2254-84	metalloproteinase 1	<i>Hydra vulgaris</i>
1566	2254-88	alpha-spectrin	<i>D. melanogaster</i>
1567	2254-93	NADH dehydrogenase subunit 6	<i>D. melanogaster</i>
1568	2254-96	cyclophilin isoform 5	<i>C. elegans</i>
1569	2255-5	similar to mitochondrial ATPase inhibitors	<i>C. elegans</i>
1570	2255-8	yk391f12.5	<i>C. elegans</i>
1571	2255-12	Unknown	<i>H. sapiens</i>
1572	2255-17	ribonucleotide reductase subunit M1	<i>M. musculus</i>
1573	2255-19	docking protein	<i>H. sapiens</i>
1574	2255-22	Similar to rat 5E5 antigen	<i>H. sapiens</i>
1575	2255-23	ribosomal protein S31	<i>D., melanogaster</i>
1576	2255-25	Similar to acyl-CoA dehydrogenase	<i>C. elegans</i>
1577	2255-28	Arginine tyrosine kinase	<i>H. sapiens</i>
1578	2255-32	ribosomal protein L7a	<i>D., melanogaster</i>
1579	2255-33	chS-Rex-s	<i>G. gallus</i>
1580	2255-39	Phosphoacetylglucosamine mutase	<i>C. elegans</i>
1581	2255-41	NADH dehydrogenase subunit 6	<i>D., melanogaster</i>
1582	2255-45	tRNA-glutamine synthetase	<i>C. elegans</i>
1583	2255-46	p68	<i>M. musculus</i>
1584	2255-49	ABC8	<i>M. musculus</i>
1585	2255-50	kynurenine aminotransferase	<i>R. rattus</i>
1586	2255-51	SmD homolog (Gly-Arg repeat)	<i>M. musculus</i>
1587	2255-56	epoxide hydrolase	<i>S. scrofa</i>
1588	2255-60	Sec23 protein	<i>H. sapiens</i>
1589	2255-62	HMG CoA synthase	<i>M. musculus</i>
1590	2255-63	dipeptidyl aminopeptidase-like protein 6	<i>M. musculus</i>
1591	2255-66	retinal rod Na ⁺ /Ca ⁺ , K ⁺ exchanger	<i>H. sapiens</i>
1592	2255-67	4-hydroxybutyrate coenzyme A transferase	<i>C. elegans</i>
1593	2255-70	hD54+ins2 isoform	<i>H. sapiens</i>
1594	2255-73	chromaffin granule ATPase II homolog	<i>M. musculus</i>
1595	2255-77	40S ribosomal protein S10	<i>H. sapiens</i>
1596	2255-79	34/67 kD laminin binding protein	<i>S. purpuratus</i>
1597	2255-82	RNA-binding protein lark	<i>D., melanogaster</i>
1598	2255-86	thiol-specific antioxidant protein	<i>R. norvegicus</i>
1599	2256-7	Similar to Human estrogen-responsive finger protein	<i>H. sapiens</i>
1600	2256-11	Trypsin	<i>C. felis</i>
1601	2256-12	CEV14	<i>H. sapiens</i>
1602	2256-16	AL021475	<i>C. elegans</i>
1603	2256-21	Heterogenous Nuclear Ribonucleoprotein C1	<i>H. sapiens</i>
1604	2256-22	b4 integrin interactor	<i>H. sapiens</i>
1605	2256-28	testis enhanced gene transcript protein	<i>H. sapiens</i>
1606	2256-31	synaptic vesicle protein 2B	<i>R. norvegicus</i>

Table II (cont'd)

SEQ ID NO	Name	GenBank Homology	Organism
1607	2256-40	TNF-alpha stimulated ABC protein	<i>H. sapiens</i>
1608	2256-42	carboxypeptidase A	<i>H. armigera</i>
1609	2256-46	pherophorin S	<i>V. carteri</i>
1610	2256-52	Fo-ATP synthase subunit b	<i>D. melanogaster</i>
1611	2256-54	PDGF associated protein	<i>H. sapiens</i>
1612	2256-58	S20 ribosomal protein	<i>D. melanogaster</i>
1613	2256-64	ribosomal protein S9	<i>H. sapiens</i>
1614	2256-69	elongation factor 1-gamma	<i>Artemia sp</i>
1615	2256-70	conserved hypothetical protein	<i>S. pombe</i>
1616	2256-72	fructose 1,6 bisphosphate-aldolase 4C	<i>D. melanogaster</i>
1617	2256-73	troponin-T	<i>D. melanogaster</i>
1618	2256-80	SRP14	<i>C. familiaris</i>
1619	2256-82	succinyl-CoA synthetase alpha subunit	<i>S. scrofa</i>
1620	2256-89	Csa-19	<i>H. sapiens</i>
1621	2256-92	Sacm21	<i>M. musculus</i>
1622	2256-94	apoptosis inhibitor	<i>Cydia pomonella</i> <i>granulosis virus</i>
1623	2256-96	ribosomal protein L22	<i>D. melanogaster</i>

Table III represents a variety of flea HNC nucleic acid molecules of the present invention.

Table III

SEQ ID NO:	Name
567	2096-19NB.HNC
568	2096-25NB.HNC
569	2096-48NB.HNC
570	2096-50NB.HNC
571	2096-52NB.HNC
572	2096-55NB.HNC
573	2097-09NB.HNC
574	2097-15NB.HNC
575	2097-20NB.HNC
576	2097-22NB.HNC
577	2097-32NB.HNC
578	2097-45NB.HNC
579	2097-46NB.HNC
580	2097-47NB.HNC
581	2097-56NB.HNC
582	2097-64NB.HNC
583	2098-04NB.HNC
584	2098-40NB.HNC
585	2098-43NB.HNC
586	2099-9NB.HNC
587	2100-10NB.HNC
588	2100-45NB.HNC
589	2100-47NB.HNC
590	2100-56NB.HNC
591	2100-63NB.HNC
592	2110-41NB.HNC
593	2110-53NB.HNC
594	2112-12NB.HNC
595	2112-35NB.HNC
596	2113-17NB.HNC
597	2115-16NB.HNC
598	2115-22NB.HNC
599	2115-3NB.HNC
600	2116-19NB.HNC
601	2116-24NB.HNC

SEQ ID NO:	Name
602	2116-27NB.HNC
603	2116-41NB.HNC
604	2116-59NB.HNC
605	2116-64NB.HNC
606	2117-05NB.HNC
607	2117-09NB.HNC
608	2117-11NB.HNC
609	2117-53NB.HNC
610	2118-03NB.HNC
611	2122-39NB.HNC
612	2123-25NB.HNC
613	2124-40NB.HNC
614	2124-62NB.HNC
615	2131-22NB.HNC
616	2131-32NB.HNC
617	2132-15NB.HNC
618	2132-28NB.HNC
619	2132-63NB.HNC
620	2132-9NB.HNC
621	2137-19NB.HNC
622	2137-24NB.HNC
623	2138-05NB.HNC
624	2138-51NB.HNC
625	2139-31NB.HNC
626	2139-41NB.HNC
627	2139-60NB.HNC
628	2140-13NB.HNC
629	2140-15NB.HNC
630	2140-18NB.HNC
631	2140-54NB.HNC
632	2141-16NB.HNC
633	2141-59NB.HNC
634	2142-16NB.HNC
635	2142-18NB.HNC
636	2143-06NB.HNC
637	2143-07NB.HNC

Table III (cont'd)

SEQ ID NO:	Name
638	2143-33NB.HNC
639	2143-54NB.HNC
640	2168-06NB.HNC
641	2168-09NB.HNC
642	2168-42NB.HNC
643	2168-79NB.HNC
644	2168-82NB.HNC
645	2170-04NB.HNC
646	2170-08NB.HNC
647	2170-82NB.HNC
648	2172-39NB.HNC
649	2172-59NB.HNC
650	2172-60NB.HNC
651	2172-77NB.HNC
652	2174-14NB.HNC
653	2174-17NB.HNC
654	2174-41NB.HNC
655	2174-49NB.HNC
656	2174-59NB.HNC
657	2174-68NB.HNC
658	2176-21NB.HNC
659	2176-34NB.HNC
660	2176-47NB.HNC
661	2176-56NB.HNC
662	2176-62NB.HNC
663	2176-63NB.HNC
664	2176-64NB.HNC
665	2176-65NB.HNC
666	2176-75NB.HNC
667	2178-05NB.HNC
668	2178-13NB.HNC
669	2178-23NB.HNC
670	2178-25NB.HNC
671	2178-41NB.HNC
672	2178-56NB.HNC
673	2178-57NB.HNC
674	2178-58NB.HNC
675	2178-67NB.HNC
676	2178-72NB.HNC

SEQ ID NO:	Name
677	2178-78NB.HNC
678	2178-80NB.HNC
679	2178-90NB.HNC
680	2178-91NB.HNC
681	2178-95NB.HNC
682	2180-05NB.HNC
683	2180-18NB.HNC
684	2180-20NB.HNC
685	2180-32NB.HNC
686	2180-59NB.HNC
687	2180-62NB.HNC
688	2180-74NB.HNC
689	2180-78NB.HNC
690	2180-79NB.HNC
691	2180-88NB.HNC
692	2180-90NB.HNC
693	2182-07NB.HNC
694	2182-12NB.HNC
695	2182-13NB.HNC
696	2182-27NB.HNC
697	2182-2NB.HNC
698	2182-46NB.HNC
699	2182-55NB.HNC
700	2182-57NB.HNC
701	2182-63NB.HNC
702	2182-64NB.HNC
703	2182-83NB.HNC
704	2182-86NB.HNC
705	2182-88NB.HNC
706	2182-90NB.HNC
707	2182-92NB.HNC
708	2182-94NB.HNC
709	2184-15NB.HNC
710	2184-37NB.HNC
711	2184-65NB.HNC
712	2186-14NB.HNC
713	2186-45NB.HNC
714	2186-50NB.HNC
715	2186-52NB.HNC

Table III (cont'd)

SEQ ID NO.	Name
716	2186-60NB.HNC
717	2186-62NB.HNC
718	2186-63NB.HNC
719	2186-68NB.HNC
720	2186-69NB.HNC
721	2211-19NB.HNC
722	2211-23NB.HNC
723	2211-29NB.HNC
724	2211-30NB.HNC
725	2211-43NB.HNC
726	2211-52NB.HNC
727	2211-64NB.HNC
728	2212-30NB.HNC
729	2212-31NB.HNC
730	2212-71NB.HNC
731	2212-72NB.HNC
732	2212-73NB.HNC
733	2212-81NB.HNC
734	2212-85NB.HNC
735	2212-87NB.HNC
736	2212-91NB.HNC
737	2212-96NB.HNC
738	2212-9NB.HNC
739	2213-08NB.HNC
740	2213-09NB.HNC
741	2213-11NB.HNC
742	2213-12NB.HNC
743	2213-18NB.HNC
744	2213-34NB.HNC
745	2213-53NB.HNC
746	2213-58NB.HNC
747	2213-67NB.HNC
748	2213-79NB.HNC
749	2214-02NB.HNC
750	2214-03NB.HNC
751	2214-05NB.HNC
752	2214-07NB.HNC
753	2214-15NB.HNC
754	2214-23NB.HNC

SEQ ID NO.	Name
755	2214-30NB.HNC
756	2214-36NB.HNC
757	2214-37NB.HNC
758	2214-40NB.HNC
759	2214-43NB.HNC
760	2214-53NB.HNC
761	2214-57NB.HNC
762	2214-60NB.HNC
763	2214-61NB.HNC
764	2214-73NB.HNC
765	2214-76NB.HNC
766	2214-80NB.HNC
767	2215-07NB.HNC
768	2215-15NB.HNC
769	2215-31NB.HNC
770	2215-41NB.HNC
771	2215-51NB.HNC
772	2215-80NB.HNC
773	2215-85NB.HNC
774	2215-91NB.HNC
775	2217-14NB.HNC
776	2217-16NB.HNC
777	2217-33NB.HNC
778	2217-39NB.HNC
779	2217-78NB.HNC
780	2217-92NB.HNC
781	2218-15NB.HNC
782	2218-19NB.HNC
783	2218-26NB.HNC
784	2218-36NB.HNC
785	2218-41NB.HNC
786	2218-56NB.HNC
787	2218-58NB.HNC
788	2218-69NB.HNC
789	2218-71NB.HNC
790	2218-76NB.HNC
791	2218-77NB.HNC
792	2218-84NB.HNC
793	2218-96NB.HNC

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Table III (cont'd)

SEQ ID NO:	Name
794	2219-11NB.HNC
795	2219-13NB.HNC
796	2219-17NB.HNC
797	2219-19NB.HNC
798	2219-20NB.HNC
799	2219-22NB.HNC
800	2219-23NB.HNC
801	2219-32NB.HNC
802	2219-45NB.HNC
803	2219-49NB.HNC
804	2219-51NB.HNC
805	2219-72NB.HNC
806	2219-80NB.HNC
807	2219-952122-39NB.HNC
	2220-02NB.HNC
808	2220-02NB.HNC
809	2220-27NB.HNC
810	2220-32NB.HNC
811	2220-53NB.HNC
812	2220-60NB.HNC
813	2220-66NB.HNC
814	2221-06NB.HNC
815	2221-15NB.HNC
816	2221-18NB.HNC
817	2221-20NB.HNC
818	2221-24NB.HNC
819	2221-45NB.HNC
820	2221-46NB.HNC
821	2221-48NB.HNC
822	2221-54NB.HNC
823	2221-55NB.HNC
824	2221-59NB.HNC
825	2221-61NB.HNC
826	2221-62NB.HNC
827	2221-70NB.HNC
828	2221-86NB.HNC
829	2221-87NB.HNC
830	2221-95NB.HNC
831	2223u-18NB.HNC

SEQ ID NO:	Name
832	2223u-22NB.HNC
833	2223u-23NB.HNC
834	2223u-31NB.HNC
835	2223u-33NB.HNC
836	2223u-36NB.HNC
837	2223u-67NB.HNC
838	2223u-85NB.HNC
839	2224u-05NB.HNC
840	2224u-07NB.HNC
841	2224u-10NB.HNC
842	2224u-11NB.HNC
843	2224u-15NB.HNC
844	2224u-25NB.HNC
845	2224u-27NB.HNC
846	2224u-44NB.HNC
847	2224u-52NB.HNC
848	2224u-62NB.HNC
849	2224u-70NB.HNC
850	2224u-71NB.HNC
851	2224u-79NB.HNC
852	2225u-11NB.HNC
853	2225u-20NB.HNC
854	2225u-23NB.HNC
855	2225u-28NB.HNC
856	2225u-55NB.HNC
857	2225u-59NB.HNC
858	2225u-64NB.HNC
859	2225u-77NB.HNC
860	2225u-95NB.HNC
861	2226-932122-39NB.HNC
862	2226u-07NB.HNC
863	2226u-19NB.HNC
864	2226u-39NB.HNC
865	2226u-45NB.HNC
866	2226u-49NB.HNC
867	2226u-54NB.HNC
868	2226u-71NB.HNC
869	2226u-77NB.HNC

Table III (cont'd)

SEQ ID NO:	Name
870	2226u-83NB.HNC
871	2226u-91NB.HNC
872	2227u-12NB.HNC
873	2227u-13NB.HNC
874	2227u-23NB.HNC
875	2227u-26NB.HNC
876	2227u-30NB.HNC
877	2227u-31NB.HNC
878	2227u-33NB.HNC
879	2227u-43NB.HNC
880	2227u-51NB.HNC
881	2227u-60NB.HNC
882	2227u-93NB.HNC
883	2228u-04NB.HNC
884	2228u-09NB.HNC
885	2228u-12NB.HNC
886	2228u-21NB.HNC
887	2228u-26NB.HNC
888	2228u-49NB.HNC
889	2228u-54NB.HNC
890	2228u-55NB.HNC
891	2228u-61NB.HNC
892	2228u-65NB.HNC
893	2228u-79NB.HNC
894	2228u-90NB.HNC
1624	2222-7
1625	2222-16
1626	2222-19
1627	2222-39
1628	2222-56
1629	2222-59
1630	2222-79
1631	2222-89
1632	2228-4
1633	2228-9
1634	2228-12
1635	2228-21
1636	2228-26
1637	2228-49
1638	2228-54
1639	2228-61
1640	2228-65

SEQ ID NO:	Name
1641	2228-79
1642	2228-90
1643	2245-5
1644	2245-7
1645	2245-15
1646	2245-16
1647	2245-17
1648	2245-20
1649	2245-35
1650	2245-38
1651	2245-39
1652	2245-51
1653	2245-52
1654	2245-57
1655	2246-13
1656	2246-19
1657	2246-25
1658	2246-27
1659	2246-29
1660	2246-40
1661	2246-45
1662	2246-52
1663	2246-64
1664	2246-66
1665	2246-74
1666	2246-82
1667	2247-6
1668	2247-17
1669	2247-29
1670	2247-31
1671	2247-36
1672	2247-40
1673	2247-46
1674	2247-50
1675	2247-54
1676	2247-63
1677	2247-66
1678	2247-68
1679	2247-69
1680	2247-81
1681	2247-82
1682	2247-95
1683	2248-7
1684	2248-18
1685	2248-32
1686	2248-41

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Table III (cont'd)

SEQ. ID NO.	Name
1687	2248-50
1688	2248-54
1689	2248-60
1690	2248-62
1691	2248-65
1692	2248-86
1693	2248-94
1694	2249-6
1695	2249-30
1696	2249-35
1697	2249-36
1698	2249-68
1699	2249-74
1700	2249-79
1701	2250-20
1702	2250-24
1703	2251-7
1704	2251-21
1705	2251-25
1706	2251-38
1707	2251-58
1708	2252-7
1709	2252-15
1710	2252-19
1711	2252-24
1712	2252-26
1713	2252-27
1714	2252-32
1715	2252-36
1716	2252-37
1717	2252-69
1718	2252-78

Table IV represents a variety of flea HMT nucleic acid molecules of the present invention.

Table IV

SEQ ID NO	Name
895	2084-02.HMTNB
896	2084-05.HMTNB
897	2084-07.HMTNB
898	2084-09.HMTNB
899	2084-15.HMTNB
900	2084-17.HMTNB
901	2084-18.HMTNB
902	2084-21.HMTNB
903	2084-22.HMTNB
904	2084-30.HMTNB
905	2084-33.HMTNB
906	2084-36.HMTNB
907	2084-37.HMTNB
908	2084-38.HMTNB
909	2084-39.HMTNB
910	2084-43.HMTNB
911	2084-50.HMTNB
912	2084-54.HMTNB
913	2084-56.HMTNB
914	2084-59.HMTNB
915	2085-03.HMTNB
916	2085-13.HMTNB
917	2085-35.HMTNB
918	2085-38.HMTNB
919	2085-39.HMTNB
920	2085-49.HMTNB
921	2085-53.HMTNB
922	2085-58.HMTNB
923	2085-61.HMTNB
924	2086-05.HMTNB
925	2086-10.HMTNB
926	2086-13.HMTNB
927	2086-15.HMTNB
928	2086-20.HMTNB
929	2086-25.HMTNB
930	2086-32.HMTNB
931	2086-33.HMTNB

SEQ ID NO	Name
932	2086-34.HMTNB
933	2086-37.HMTNB
934	2086-41.HMTNB
935	2086-43.HMTNB
936	2086-44.HMTNB
937	2086-54.HMTNB
938	2086-55.HMTNB
939	2086-58.HMTNB
940	2087-09.HMTNB
941	2087-17.HMTNB
942	2087-28.HMTNB
943	2087-33.HMTNB
944	2087-35.HMTNB
945	2087-51.HMTNB
946	2087-54.HMTNB
947	2088-07.HMTNB
948	2088-17.HMTNB
949	2088-35.HMTNB
950	2088-52.HMTNB
951	2088-59.HMTNB
952	2089-12.HMTNB
953	2089-14.HMTNB
954	2089-33.HMTNB
955	2089-36.HMTNB
956	2089-51.HMTNB
957	2089-60.HMTNB
958	2090-11.HMTNB
959	2090-27.HMTNB
960	2090-33.HMTNB
961	2090-44.HMTNB
962	2090-57.HMTNB
963	2091-11.HMTNB
964	2091-22.HMTNB
965	2091-23.HMTNB
966	2091-35.HMTNB
967	2091-63.HMTNB
968	2092-11.HMTNB

Table IV (cont'd)

SEQ ID NO	Name
969	2092-16.HMTNB
970	2092-40.HMTNB
971	2092-42.HMTNB
972	2092-46.HMTNB
973	2092-60.HMTNB
974	2093-20.HMTNB
975	2093-23.HMTNB
976	2093-43.HMTNB
977	2093-48.HMTNB
978	2093-50.HMTNB
979	2093-62.HMTNB
980	2093-63.HMTNB
981	2094-08.HMTNB
982	2094-26.HMTNB
983	2094-33.HMTNB
984	2094-47.HMTNB
985	2094-50.HMTNB
986	2094-62.HMTNB
987	2095-04.HMTNB
988	2095-10.HMTNB
989	2095-12.HMTNB
990	2095-13.HMTNB
991	2095-15.HMTNB
992	2095-20.HMTNB
993	2095-22.HMTNB
994	2095-31.HMTNB
995	2095-33.HMTNB
996	2095-34.HMTNB
997	2095-36.HMTNB
998	2095-40.HMTNB
999	2095-48.HMTNB
1000	2102-12.HMTNB
1001	2102-16.HMTNB
1002	2102-18.HMTNB
1003	2102-19.HMTNB
1004	2102-20.HMTNB
1005	2102-29.HMTNB
1006	2102-35.HMTNB
1007	2102-37.HMTNB
1008	2102-38.HMTNB
1009	2102-41.HMTNB
1010	2102-47.HMTNB
1011	2103-02.HMTNB
1012	2103-09.HMTNB
1013	2103-45.HMTNB
1014	2103-56.HMTNB
1015	2103-58.HMTNB
1016	2104-58.HMTNB

SEQ ID NO	Name
1017	2104-60.HMTNB
1018	2104-61.HMTNB
1019	2105-02.HMTNB
1020	2105-20.HMTNB
1021	2105-35.HMTNB
1022	2105-42.HMTNB
1023	2105-44.HMTNB
1024	2106-05.HMTNB
1025	2106-27.HMTNB
1026	2106-29.HMTNB
1027	2106-34.HMTNB
1028	2106-48.HMTNB
1029	2106-50.HMTNB
1030	2106-64.HMTNB
1031	2107-02.HMTNB
1032	2107-10.HMTNB
1033	2107-37.HMTNB
1034	2108-03.HMTNB
1035	2108-23.HMTNB
1036	2108-46.HMTNB
1037	2108-47.HMTNB
1038	2108-48.HMTNB
1039	2108-49.HMTNB
1040	2108-63.HMTNB
1041	2109-04.HMTNB
1042	2109-06.HMTNB
1043	2109-37.HMTNB
1044	2109-38.HMTNB
1045	2109-44.HMTNB
1046	2154-08.HMTNB
1047	2154-09.HMTNB
1048	2154-10.HMTNB
1049	2154-28.HMTNB
1050	2154-30.HMTNB
1051	2154-45.HMTNB
1052	2154-46.HMTNB
1053	2154-61.HMTNB
1054	2154-71.HMTNB
1055	2154-81.HMTNB
1056	2154-83.HMTNB
1057	2156-02.HMTNB
1058	2156-06.HMTNB
1059	2156-18.HMTNB
1060	2156-27.HMTNB
1061	2156-43.HMTNB
1062	2156-48.HMTNB
1063	2156-50.HMTNB
1064	2157-16.HMTNB

Table IV (cont'd)

SEQ ID NO	Name
1065	2157-34.HMTNB
1066	2157-45.HMTNB
1067	2157-70.HMTNB
1068	2157-75.HMTNB
1069	2157-79.HMTNB
1070	2157-86.HMTNB
1071	2158-02.HMTNB
1072	2158-14.HMTNB
1073	2158-19.HMTNB
1074	2158-22.HMTNB
1075	2158-27.HMTNB
1076	2158-34.HMTNB
1077	2158-37.HMTNB
1078	2158-39.HMTNB
1079	2159-07.HMTNB
1080	2159-09.HMTNB
1081	2159-17.HMTNB
1082	2159-34.HMTNB
1083	2159-35.HMTNB
1084	2159-60.HMTNB
1085	2160-16.HMTNB
1086	2160-17.HMTNB
1087	2160-29.HMTNB
1088	2160-30.HMTNB
1089	2160-32.HMTNB
1090	2160-39.HMTNB
1091	2160-49.HMTNB
1092	2160-53.HMTNB
1093	2160-54.HMTNB
1094	2160-55.HMTNB
1095	2160-77.HMTNB
1096	2160-82.HMTNB
1097	2160-89.HMTNB
1098	2160-91.HMTNB
1099	2161-13.HMTNB
1100	2161-19.HMTNB
1101	2161-45.HMTNB
1102	2161-57.HMTNB
1103	2161-60.HMTNB
1104	2161-79.HMTNB
1105	2161-83.HMTNB
1106	2161-90.HMTNB
1107	2161-94.HMTNB
1108	2162-05.HMTNB
1109	2162-12.HMTNB
1110	2162-13.HMTNB
1111	2162-18.HMTNB
1112	2162-35.HMTNB

SEQ ID NO	Name
1113	2162-41.HMTNB
1114	2162-50.HMTNB
1115	2162-59.HMTNB
1116	2162-63.HMTNB
1117	2162-71.HMTNB
1118	2162-75.HMTNB
1119	2162-78.HMTNB
1120	2163-07.HMTNB
1121	2163-11.HMTNB
1122	2163-18.HMTNB
1123	2163-23.HMTNB
1124	2163-25.HMTNB
1125	2163-43.HMTNB
1126	2163-50.HMTNB
1127	2163-61.HMTNB
1128	2163-65.HMTNB
1129	2163-73.HMTNB
1130	2163-77.HMTNB
1131	2163-87.HMTNB
1132	2163-93.HMTNB
1133	2163-95.HMTNB
1134	2165-04.HMTNB
1135	2165-06.HMTNB
1136	2165-24.HMTNB
1137	2165-45.HMTNB
1138	2165-59.HMTNB
1139	2165-65.HMTNB
1140	2166-02.HMTNB
1141	2166-12.HMTNB
1142	2166-42.HMTNB
1143	2166-46.HMTNB
1144	2166-47.HMTNB
1145	2167-07.HMTNB
1146	2167-16.HMTNB
1147	2167-42.HMTNB
1148	2167-65.HMTNB
1149	2167-66.HMTNB
1150	2167-79.HMTNB
1151	2167-90.HMTNB
1152	2167-94.HMTNB
1153	2169-05.HMTNB
1154	2169-12.HMTNB
1155	2169-16.HMTNB
1156	2169-17.HMTNB
1157	2169-19.HMTNB
1158	2169-22.HMTNB
1159	2169-26.HMTNB
1160	2169-33.HMTNB

Table IV (cont'd)

SEQ ID NO	Name
1161	2169-42.HMTNB
1162	2169-46.HMTNB
1163	2169-47.HMTNB
1164	2169-57.HMTNB
1165	2169-69.HMTNB
1166	2171-06.HMTNB
1167	2171-09.HMTNB
1168	2171-11.HMTNB
1169	2171-29.HMTNB
1170	2171-33.HMTNB
1171	2171-35.HMTNB
1172	2171-41.HMTNB
1173	2171-54.HMTNB
1174	2171-57.HMTNB
1175	2171-69.HMTNB
1176	2171-82.HMTNB
1177	2171-84.HMTNB
1178	2171-85.HMTNB
1179	2173-12.HMTNB
1180	2173-34.HMTNB
1181	2173-42.HMTNB
1182	2173-48.HMTNB
1183	2173-54.HMTNB
1184	2173-57.HMTNB
1185	2173-75.HMTNB
1186	2173-86.HMTNB
1187	2173-91.HMTNB
1188	2175-06.HMTNB
1189	2175-15.HMTNB
1190	2175-20.HMTNB
1191	2175-58.HMTNB
1192	2175-96.HMTNB
1193	2177-16.HMTNB
1194	2177-70.HMTNB
1195	2177-86.HMTNB
1196	2179-02.HMTNB
1197	2179-03.HMTNB
1198	2179-19.HMTNB
1199	2179-22.HMTNB
1200	2179-29.HMTNB
1201	2179-39.HMTNB
1202	2179-63.HMTNB
1203	2181-04.HMTNB
1204	2181-24.HMTNB
1205	2181-35.HMTNB
1206	2181-66.HMTNB
1207	2181-75.HMTNB
1208	2181-76.HMTNB

SEQ ID NO	Name
1209	2181-84.HMTNB
1210	2183-05.HMTNB
1211	2183-13.HMTNB
1212	2183-17.HMTNB
1213	2183-28.HMTNB
1214	2183-45.HMTNB
1215	2183-50.HMTNB
1216	2183-51.HMTNB
1217	2183-70.HMTNB
1218	2185-05.HMTNB
1219	2185-10.HMTNB
1220	2185-12.HMTNB
1221	2185-18.HMTNB
1222	2185-43.HMTNB
1223	2185-49.HMTNB
1224	2185-54.HMTNB
1225	2185-82.HMTNB
1226	2187-21.HMTNB
1227	2187-37.HMTNB
1228	2187-47.HMTNB
1229	2187-93.HMTNB
1230	2188-22.HMTNB
1231	2188-29.HMTNB
1232	2188-32.HMTNB
1233	2188-52.HMTNB
1234	2188-54.HMTNB
1235	2188-72.HMTNB
1236	2188-92.HMTNB
1237	2189-31.HMTNB
1238	2189-56.HMTNB
1239	2189-75.HMTNB
1240	2189-84.HMTNB
1241	2191-23.HMTNB
1242	2191-38.HMTNB
1243	2191-58.HMTNB
1244	2191-73.HMTNB
1245	2191-77.HMTNB
1246	2191-90.HMTNB
1247	2191-94.HMTNB
1248	2191-96.HMTNB
1249	2192-03.HMTNB
1250	2192-14.HMTNB
1251	2192-36.HMTNB
1252	2192-46.HMTNB
1253	2192-88.HMTNB
1254	2194-07.HMTNB
1255	2194-13.HMTNB
1256	2194-16.HMTNB

Table IV (cont'd)

SEQ.ID.NO.	Name
1257	2194-18.HMTNB
1258	2194-28.HMTNB
1259	2195-06.HMTNB
1260	2195-47.HMTNB
1261	2195-60.HMTNB
1262	2196-18.HMTNB
1263	2196-30.HMTNB
1264	2196-53.HMTNB
1265	2196-65.HMTNB
1266	2196-76.HMTNB
1267	2197-28.HMTNB
1268	2197-46.HMTNB
1269	2197-51.HMTNB
1270	2197-59.HMTNB
1271	2202-96.HMTNB
1272	2203-36.HMTNB
1273	2204-09.HMTNB
1274	2205-11.HMTNB
1275	2205-33.HMTNB
1276	2205-43.HMTNB
1277	2205-85.HMTNB
1278	2229-08u.HMTNB
1279	2229-10u.HMTNB
1280	2229-12u.HMTNB
1281	2229-14u.HMTNB
1282	2229-27u.HMTNB
1283	2229-40u.HMTNB
1284	2229-45u.HMTNB
1285	2229-48u.HMTNB
1286	2229-50u.HMTNB
1287	2229-54u.HMTNB
1288	2229-56u.HMTNB
1289	2229-57u.HMTNB
1290	2229-59u.HMTNB
1291	2229-70u.HMTNB
1292	2229-87u.HMTNB
1293	2229-91u.HMTNB
1294	2229-95u.HMTNB
1295	2230-07u.HMTNB
1296	2230-11u.HMTNB
1297	2230-19u.HMTNB
1298	2230-27u.HMTNB
1299	2230-33u.HMTNB
1300	2230-41u.HMTNB
1301	2230-51u.HMTNB
1302	2230-56u.HMTNB
1303	2230-66u.HMTNB
1304	2230-71u.HMTNB

SEQ.ID.NO.	Name
1305	2230-75.HMTNB
1306	2230-81u.HMTNB
1307	2230-84u.HMTNB
1308	2230-93u.HMTNB
1309	2231-23u.HMTNB
1310	2231-26u.HMTNB
1311	2231-32u.HMTNB
1312	2231-37u.HMTNB
1313	2231-44u.HMTNB
1314	2231-50u.HMTNB
1315	2231-51u.HMTNB
1316	2231-63u.HMTNB
1317	2231-68u.HMTNB
1318	2231-74u.HMTNB
1319	2231-82u.HMTNB
1320	2231-85u.HMTNB
1321	2231-88u.HMTNB
1322	2231-94u.HMTNB
1323	2231-95u.HMTNB
1324	2232-03u.HMTNB
1325	2232-11u.HMTNB
1326	2232-19u.HMTNB
1327	2232-25u.HMTNB
1328	2232-30u.HMTNB
1329	2232-44u.HMTNB
1330	2232-50u.HMTNB
1331	2232-56u.HMTNB
1332	2232-60u.HMTNB
1333	2232-64u.HMTNB
1334	2232-71u.HMTNB
1335	2232-73u.HMTNB
1336	2232-80u.HMTNB
1337	2232-83u.HMTNB
1338	2233-02u.HMTNB
1339	2233-53u.HMTNB
1340	2233-57u.HMTNB
1341	2233-58u.HMTNB
1342	2233-80u.HMTNB
1343	2233-81u.HMTNB
1344	2233-83u.HMTNB
1345	2234-02u.HMTNB
1346	2234-03u.HMTNB
1347	2234-05u.HMTNB
1348	2234-06u.HMTNB
1349	2234-09u.HMTNB
1350	2234-12u.HMTNB
1351	2234-23u.HMTNB
1352	2234-26u.HMTNB

Table IV (cont'd)

SEQ ID NO	Name
1353	2234-46u.HMTNB
1354	2234-66u.HMTNB
1355	2234-67u.HMTNB
1356	2234-70u.HMTNB
1357	2234-74u.HMTNB
1358	2234-77u.HMTNB
1359	2234-82u.HMTNB
1360	2234-88u.HMTNB
1361	2234-89u.HMTNB
1362	2234-90u.HMTNB
1363	2234-93u.HMTNB
1364	2240-39
1365	2240-40
1366	2240-49
1367	2240-51
1368	2240-57
1369	2240-61
1370	2240-62
1371	2241-2
1372	2241-3
1373	2241-8
1374	2241-9
1375	2241-13
1376	2241-21
1377	2241-29
1378	2241-38
1379	2241-45
1380	2241-49
1381	2241-51
1382	2241-57
1383	2241-63
1384	2241-68
1385	2241-89
1386	2241-91
1387	2243-2
1388	2243-3
1389	2243-12
1390	2243-14
1391	2243-19
1392	2243-24
1393	2243-25
1394	2243-33
1395	2243-49
1396	2243-50
1397	2243-51
1398	2243-59
1399	2243-63
1400	2243-69

SEQ ID NO	Name
1401	2243-74
1402	2243-75
1403	2243-77
1404	2244-19
1405	2244-26
1406	2244-35
1407	2244-38
1408	2244-40
1409	2244-47
1410	2244-52
1411	2244-57
1412	2244-63
1413	2244-68
1414	2244-77
1415	2244-80

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In one embodiment, a gene or other nucleic acid molecule of the present invention can be an allelic variant that includes a similar but not identical sequence to SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:153, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:161, SEQ ID NO:162, SEQ ID NO:164, SEQ ID NO:165, SEQ ID NO:167, SEQ ID NO:168, SEQ ID NO:170, SEQ ID NO:1859, SEQ ID NO:1860, SEQ ID NO:1861, SEQ ID NO:1863, SEQ ID NO:1864, SEQ ID NO:1866, SEQ ID NO:1867, SEQ ID NO:1869, SEQ ID NO:1870, SEQ ID NO:1871, SEQ ID NO:1872, SEQ ID NO:1874, SEQ ID NO:1875, SEQ ID NO:1876, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1880, SEQ ID NO:1881, SEQ ID NO:1882, SEQ ID NO:1884, SEQ ID NO:1885, SEQ ID NO:1886, SEQ ID NO:1887, SEQ ID NO:1889, SEQ ID NO:1890, SEQ ID NO:1891, SEQ ID NO:1892, SEQ ID NO:1893, SEQ ID NO:1894, SEQ ID NO:1895, SEQ ID NO:1896, SEQ ID NO:1898, SEQ ID NO:1899, SEQ ID NO:1900, SEQ ID NO:1901, SEQ ID NO:1903, SEQ ID NO:1904, SEQ ID NO:1905, SEQ ID NO:1906, SEQ ID NO:1907, SEQ ID NO:1908, SEQ ID NO:1909, SEQ ID NO:1910, SEQ ID NO:1911, SEQ ID NO:1912, SEQ ID NO:1913, SEQ ID NO:1914, SEQ ID NO:1916, SEQ ID NO:1917, SEQ ID NO:1918, SEQ ID NO:1919, SEQ ID NO:1921, SEQ ID NO:1922, SEQ ID NO:1923, SEQ ID NO:1924, SEQ ID NO:1926, SEQ ID NO:1927, SEQ ID NO:1928, SEQ ID NO:1929, and/or SEQ ID NO:1931 or a *C. felis* nucleic acid sequence of Table I, Table II, Table III and/or Table IV or a complement thereof. For example, an allelic variant of a *C. felis* ALN gene including SEQ ID NO:1 is a gene that occurs at essentially the same locus (or loci) in the genome as the gene including SEQ ID NO:1, but which, due to natural variations caused by, for example, mutation or recombination, has a similar but not identical sequence. Because natural selection typically selects against alterations that affect function, allelic variants (i.e. alleles corresponding to, or of, cited nucleic acid

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sequences) usually encode proteins having similar activity to that of the protein encoded by the gene to which they are being compared. Allelic variants of genes or nucleic acid molecules can also comprise alterations in the 5' or 3' untranslated regions of the gene (e.g., in regulatory control regions), or can involve alternative splicing of a nascent transcript, thereby bringing alternative exons into juxtaposition. Allelic variants are well known to those skilled in the art and would be expected to occur naturally within a given flea such as *C. felis*, since the genome is diploid, and sexual reproduction will result in the reassortment of alleles. For example, SEQ ID NO:162 is apparently an allelic variant or multiple gene of SEQ ID NO:153.

10 In one embodiment of the present invention, isolated HMT and HNC proteins are encoded by nucleic acid molecules that hybridize under stringent hybridization conditions to genes or other nucleic acid molecules encoding flea HMT and HNC proteins, respectively. The minimal size of HMT and HNC proteins of the present invention is a size sufficient to be encoded by a nucleic acid molecule capable of forming a stable hybrid (i.e., hybridizing under stringent hybridization conditions) with the complementary sequence of a nucleic acid molecule encoding the corresponding natural protein. The size of a nucleic acid molecule encoding such a protein is dependent on the nucleic acid composition and the percent homology between the flea HMT or HNC nucleic acid molecule and the complementary nucleic acid sequence. It can easily be understood that the extent of homology required to form a stable hybrid under stringent conditions can vary depending on whether the homologous sequences are interspersed throughout a given nucleic acid molecule or are clustered (i.e., localized) in distinct regions on a given nucleic acid molecule.

The minimal size of a nucleic acid molecule capable of forming a stable hybrid with a gene encoding a flea HMT or HNC protein is typically at least about 12 to about 25 15 nucleotides in length if the nucleic acid molecule is GC-rich and at least about 15 to about 17 bases in length if it is AT-rich. The minimal size of a nucleic acid molecule used to encode an HMT or HNC protein homologue of the present invention is from about 12 to about 18 nucleotides in length. Thus, the minimal size of HMT or HNC protein homologues of the present invention is from about 4 to about 6 amino acids in 30 length. There is no limit, other than a practical limit, on the maximal size of a nucleic

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acid molecule encoding a flea HMT or HNC protein of the present invention because a nucleic acid molecule of the present invention can include a portion of a gene, an entire gene, or multiple genes. The preferred size of a protein encoded by a nucleic acid molecule of the present invention depends on whether a full-length, fusion, multivalent,
5 or functional portion of such a protein is desired.

Stringent hybridization conditions are determined based on defined physical properties of the gene to which the nucleic acid molecule is being hybridized, and can be defined mathematically. Stringent hybridization conditions are those experimental parameters that allow an individual skilled in the art to identify significant similarities
10 between heterologous nucleic acid molecules. These conditions are well known to those skilled in the art. See, for example, Sambrook, *et al.*, 1989, *Molecular Cloning: A Laboratory Manual*, Cold Spring Harbor Labs Press, and Meinkoth, *et al.*, 1984, *Anal. Biochem.* 138, 267-284. As explained in detail in the cited references, the determination of hybridization conditions involves the manipulation of a set of variables including the
15 ionic strength (M, in moles/liter), the hybridization temperature (°C), the concentration of nucleic acid helix destabilizing agents (such as formamide), the average length of the shortest hybrid duplex (n), and the percent G + C composition of the fragment to which an unknown nucleic acid molecule is being hybridized. For nucleic acid molecules of at least about 150 nucleotides, these variables are inserted into a standard mathematical
20 formula to calculate the melting temperature, or T_m , of a given nucleic acid molecule. As defined in the formula below, T_m is the temperature at which two complementary nucleic acid molecule strands will disassociate, assuming 100% complementarity between the two strands:

$$T_m = 81.5^{\circ}\text{C} + 16.6 \log M + 0.41(\%G + C) - 500/n - 0.61(\%\text{formamide}).$$

25 For nucleic acid molecules smaller than about 50 nucleotides, hybrid stability is defined by the dissociation temperature (T_d), which is defined as the temperature at which 50% of the duplexes dissociate. For these smaller molecules, the stability at a standard ionic strength is defined by the following equation:

$$T_d = 4(G + C) + 2(A + T).$$

30 A temperature of 5°C below T_d is used to detect hybridization between perfectly matched molecules.

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Also well known to those skilled in the art is how base pair mismatch, i.e. differences between two nucleic acid molecules being compared, including non-complementarity of bases at a given location, and gaps due to insertion or deletion of one or more bases at a given location on either of the nucleic acid molecules being compared, will affect T_m or T_d for nucleic acid molecules of different sizes. For example, T_m decreases about 1°C for each 1% of mismatched base pairs for hybrids greater than about 150 bp, and T_d decreases about 5°C for each mismatched base pair for hybrids below about 50 bp. Conditions for hybrids between about 50 and about 150 base pairs can be determined empirically and without undue experimentation using standard laboratory procedures well known to those skilled in the art. These simple procedures allow one skilled in the art to set the hybridization conditions (by altering, for example, the salt concentration, the formamide concentration or the temperature) so that only nucleic acid hybrids with greater than a specified % base pair mismatch will hybridize. Stringent hybridization conditions are commonly understood by those skilled in the art to be those experimental conditions that will allow less than or equal to about 30% base pair mismatch (i.e., at least about 70% identity). Because one skilled in the art can easily determine whether a given nucleic acid molecule to be tested is less than or greater than about 50 nucleotides, and can therefore choose the appropriate formula for determining hybridization conditions, he or she can determine whether the nucleic acid molecule will hybridize with a given gene under stringent hybridization conditions and similarly whether the nucleic acid molecule will hybridize under conditions designed to allow a desired amount of base pair mismatch.

Hybridization reactions are often carried out by attaching the nucleic acid molecule to be hybridized to a solid support such as a membrane, and then hybridizing with a labeled nucleic acid molecule, typically referred to as a probe, suspended in a hybridization solution. Examples of common hybridization reaction techniques include, but are not limited to, the well-known Southern and northern blotting procedures. Typically, the actual hybridization reaction is done under non-stringent conditions, i.e., at a lower temperature and/or a higher salt concentration, and then high stringency is achieved by washing the membrane in a solution with a higher temperature and/or lower salt concentration in order to achieve the desired stringency.

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For example, if the skilled artisan wished to identify a nucleic acid molecule that hybridizes under conditions that would allow less than or equal to 30% pair mismatch with a flea nucleic acid molecule of about 150 bp in length or greater, the following conditions could preferably be used. The average G + C content of flea DNA is about 37%, as calculated from known flea nucleic acid sequences. The unknown nucleic acid molecules would be attached to a support membrane, and the 150 bp probe would be labeled, e.g. with a radioactive tag. The hybridization reaction could be carried out in a solution comprising 2X SSC and 0% formamide, at a temperature of about 37°C (low stringency conditions). Solutions of differing concentrations of SSC can be made by one of skill in the art by diluting a stock solution of 20X SSC (175.3 gram NaCl and about 88.2 gram sodium citrate in 1 liter of water, pH 7) to obtain the desired concentration of SSC. The skilled artisan would calculate the washing conditions required to allow up to 30% base pair mismatch. For example, in a wash solution comprising 1X SSC and 0% formamide, the T_m of perfect hybrids would be about 77°C:

$$81.5^{\circ}\text{C} + 16.6 \log (.15\text{M}) + (0.41 \times 0.37) - (500/150) - (0.61 \times 0) = 77.5^{\circ}\text{C}.$$

Thus, to achieve hybridization with nucleic acid molecules having about 30% base pair mismatch, hybridization washes would be carried out at a temperature of less than or equal to 47.5°C. It is thus within the skill of one in the art to calculate additional hybridization temperatures based on the desired percentage base pair mismatch, formulae and G/C content disclosed herein. For example, it is appreciated by one skilled in the art that as the nucleic acid molecule to be tested for hybridization against nucleic acid molecules of the present invention having sequences specified herein becomes longer than 150 nucleotides, the T_m for a hybridization reaction allowing up to 30% base pair mismatch will not vary significantly from 47.5°C.

Furthermore, it is known in the art that there are commercially available computer programs for determining the degree of similarity between two nucleic acid sequences. These computer programs include various known methods to determine the percentage identity and the number and length of gaps between hybrid nucleic acid molecules. Preferred methods to determine the percent identity among amino acid sequences and also among nucleic acid sequences include analysis using one or more of the commercially available computer programs designed to compare and analyze nucleic

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acid or amino acid sequences. These computer programs include, but are not limited to, the Wisconsin Package Version 9.0 sequence analysis software, available from Genetics Computer Group (GCG™), Madison, WI, DNAsis™, available from Hitachi Software, San Bruno, CA, and MacVector™, available from the Eastman Kodak Company, New Haven, CT. A preferred method to determine percent identity among amino acid sequences and also among nucleic acid sequences includes using the GAP program with pair-wise comparisons within the GCG™ Wisconsin Package Version 9.0 sequence analysis software, hereinafter referred to as default parameters.

One embodiment of the present invention includes flea ALN, CBP, NKAB, LGIC, ANON, MALV, OS-D, NMDA, CLBP, NAH, CLIC, PL2, PL3, PL4, SVP, VGCC, AUP, and 7B2 proteins. A preferred flea ALN protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:3 and SEQ ID NO:6.

A preferred flea CBP protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:9 and SEQ ID NO:12.

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A preferred flea NKAB protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:15 and SEQ ID NO:18.

A preferred flea LGIC protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:21 and SEQ ID NO:24, SEQ ID NO:1860, SEQ ID NO:1863, and SEQ ID NO:1866.

A preferred flea ANON protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:27 and SEQ ID NO:30.

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A preferred flea MALV protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:33 and SEQ ID NO:36.

A preferred flea OS-D protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:39 and SEQ ID NO:42.

A preferred flea NMDA protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:45 and SEQ ID NO:48.

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A preferred flea CLBP protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:155, SEQ ID NO:158, SEQ ID NO:161, SEQ ID NO:164, SEQ ID NO:167 and SEQ ID NO:170.

A preferred flea NAH protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:1869 and SEQ ID NO:1871.

A preferred flea CLIC protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:1874 and SEQ ID NO:1876.

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A preferred flea PL2 protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:1879, SEQ ID NO:1881, SEQ ID NO:1884, and SEQ ID NO:1886.

A preferred flea CPL3 protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:1889 and SEQ ID NO:1891.

A preferred flea PL4 protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:1893, SEQ ID NO:1895, SEQ ID NO:1898, and SEQ ID NO:1900.

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A preferred flea SVP protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:1903 and SEQ ID NO:1905.

A preferred flea VGCC protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:1907, SEQ ID NO:1909, SEQ ID NO:1911, SEQ ID NO:1913, SEQ ID NO:1916, and SEQ ID NO:1918.

A preferred flea AUP protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:1921 and SEQ ID NO:1923.

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A preferred flea 7B2 protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of SEQ ID NO:1926, SEQ ID NO:1928, and SEQ ID NO:1931.

A preferred flea HMT and/or HNC protein includes a protein encoded by a nucleic acid molecule that hybridizes under conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule selected from the group consisting of a nucleic acid sequence complementary to a nucleic acid sequence of Table I, Table II, Table III and/or Table IV.

Another embodiment of the present invention includes a flea ALN protein encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:3 and SEQ ID NO:6.

Another embodiment of the present invention includes a flea CBP protein encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a

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temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:9 and SEQ ID NO:13.

Another embodiment of the present invention includes a flea NKAB protein encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a)
5 hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:15 and SEQ ID NO:18.

Another embodiment of the present invention includes a flea LGIC protein
10 encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:21, SEQ ID NO:24, SEQ ID NO:1860, SEQ ID
15 NO:1863, and SEQ ID NO:1866.

Another embodiment of the present invention includes a flea ANON protein encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a
20 temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:27 and SEQ ID NO:30.

Another embodiment of the present invention includes a flea MALV protein encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of
25 about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:33 and SEQ ID NO:36.

Another embodiment of the present invention includes a flea OS-D protein encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a)
30 hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a

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temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:39 and SEQ ID NO:42.

Another embodiment of the present invention includes a flea NMDA protein encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a)
5 hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:45 and SEQ ID NO:48.

Another embodiment of the present invention includes a flea CLBP protein
10 encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:155, SEQ ID NO:158, SEQ ID NO:161, SEQ ID
15 NO:164, SEQ ID NO:167 and SEQ ID NO:170.

Another embodiment of the present invention includes a flea NAH protein encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a
20 temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:1869 and SEQ ID NO:1871.

Another embodiment of the present invention includes a flea CLIC protein encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of
25 about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:1874 and SEQ ID NO:1876.

Another embodiment of the present invention includes a flea PL2 protein encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a)
30 hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a

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temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:1879, SEQ ID NO:1881, SEQ ID NO:1884 and SEQ ID NO:1886.

Another embodiment of the present invention includes a flea PL3 protein
5 encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:1889 and SEQ ID NO:1891.

10 Another embodiment of the present invention includes a flea PL4 protein encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the
15 group consisting of SEQ ID NO:1893, SEQ ID NO:1895, SEQ ID NO:1898, and SEQ ID NO:1900.

Another embodiment of the present invention includes a flea SVP protein encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of
20 about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:1903 and SEQ ID NO:1905.

Another embodiment of the present invention includes a flea VGCC protein encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a)
25 hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:1907, SEQ ID NO:1909, SEQ ID NO:1911, SEQ ID NO:1913, SEQ ID NO:1916, and SEQ ID NO:1918.

30 Another embodiment of the present invention includes a flea AUP protein encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a)

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hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:1921 and SEQ ID NO:1923.

- 5 Another embodiment of the present invention includes a flea 7B2 protein encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the
10 group consisting of SEQ ID NO:1926, SEQ ID NO:1928, and SEQ ID NO:1931.

- Another embodiment of the present invention includes a flea HMT and/or HNC protein encoded by a nucleic acid molecule that hybridizes under conditions comprising, (a) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a
15 temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of a nucleic acid sequence complementary to a nucleic acid sequence of Table I, Table II, Table III and/or Table IV.

- Another preferred flea ALN protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical,
20 more preferably at least about 75% identical, more preferably at least about 80% identical, more preferably about at least 85% identical, more preferably about at least 90% identical, and even more preferably about at least 95% identical to a nucleic acid molecule having the nucleic acid sequence SEQ ID NO:1 and/or SEQ ID NO:4; also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid
25 molecules that are at least about 18 nucleotides. Percent identity as used herein is determined using the Compare function by maximum matching within the program DNAsis Version 2.1 using default parameters.

- Another preferred flea CBP protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical,
30 more preferably at least about 75% identical, more preferably at least about 80% identical, more preferably at least about 85% identical, more preferably at least about

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90% identical, and even more preferably at least about 95% identical to a nucleic acid molecule having the nucleic acid sequence SEQ ID NO:7 and/or SEQ ID NO:10; also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is
5 determined using the Compare function by maximum matching within the program DNAsis Version 2.1 using default parameters.

Another preferred flea NKAB protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80%
10 identical, more preferably at least about 85% identical, more preferably at least about 90% identical, and even more preferably at least about 95% identical to a nucleic acid molecule having the nucleic acid sequence SEQ ID NO:13 and/or SEQ ID NO:16; also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is
15 determined using the Compare function by maximum matching within the program DNAsis Version 2.1 using default parameters.

Another preferred flea LGIC protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80%
20 identical, more preferably at least about 85% identical, more preferably at least about 90% identical, and even more preferably at least about 95% identical to a nucleic acid molecule having the nucleic acid sequence SEQ ID NO:19, SEQ ID NO:22, SEQ ID NO:1861, and/or SEQ ID NO:1864; also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides.
25 Percent identity as used herein is determined using the Compare function by maximum matching within the program DNAsis Version 2.1 using default parameters.

Another preferred flea ANON protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80%
30 identical, more preferably at least about 85% identical, more preferably at least about 90% identical, and even more preferably at least about 95% identical to a nucleic acid

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molecule having the nucleic acid sequence SEQ ID NO:25 and/or SEQ ID NO:28; also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is determined using the Compare function by maximum matching within the program

5 DNAsis Version 2.1 using default parameters.

Another preferred flea MALV protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80% identical, more preferably at least about 85% identical, more preferably at least about
10 90% identical, and even more preferably at least about 95% identical to a nucleic acid molecule having the nucleic acid sequence SEQ ID NO:31 and/or SEQ ID NO:34; also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is determined using the Compare function by maximum matching within the program
15 DNAsis Version 2.1 using default parameters.

Another preferred flea OS-D protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80% identical, more preferably at least about 85% identical, more preferably at least about
20 90% identical, and even more preferably at least about 95% identical to a nucleic acid molecule having the nucleic acid sequence SEQ ID NO:37 and/or SEQ ID NO:40; also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is determined using the Compare function by maximum matching within the program
25 DNAsis Version 2.1 using default parameters.

Another preferred flea NMDA protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80% identical, more preferably at least about 85% identical, more preferably at least about
30 90% identical, and even more preferably at least about 95% identical to a nucleic acid molecule having the nucleic acid sequence SEQ ID NO:43 and/or SEQ ID NO:46; also

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preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is determined using the Compare function by maximum matching within the program DNAsis Version 2.1 using default parameters.

5 Another preferred flea CLBP protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80% identical, more preferably at least about 85% identical, more preferably at least about 90% identical, and even more preferably at least about 95% identical to a nucleic acid
10 molecule having the nucleic acid sequence SEQ ID NO:153, SEQ ID NO:156, SEQ ID NO:159, SEQ ID NO:162, SEQ ID NO:165 and/or SEQ ID NO:168; also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is determined using the Compare function by maximum matching within the program DNAsis Version 2.1 using
15 default parameters.

Another preferred flea NAH protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80% identical, more preferably about at least 85% identical, more preferably about at least
20 90% identical, and even more preferably about at least 95% identical to a nucleic acid molecule having the nucleic acid sequence SEQ ID NO:1867 and/or SEQ ID NO:1870; also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is determined using the Compare function by maximum matching within the program
25 DNAsis Version 2.1 using default parameters.

Another preferred flea CLIC protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80% identical, more preferably about at least 85% identical, more preferably about at least
30 90% identical, and even more preferably about at least 95% identical to a nucleic acid molecule having the nucleic acid sequence SEQ ID NO:1872 and/or SEQ ID NO:1875;

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also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is determined using the Compare function by maximum matching within the program DNAsis Version 2.1 using default parameters.

5 Another preferred flea PL2 protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80% identical, more preferably about at least 85% identical, more preferably about at least 90% identical, and even more preferably about at least 95% identical to a nucleic acid
10 molecule having the nucleic acid sequence SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1880, SEQ ID NO:1882, and/or SEQ ID NO:1885; also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is determined using the Compare function by maximum matching within the program DNAsis Version 2.1 using default
15 parameters.

 Another preferred flea PL3 protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80% identical, more preferably about at least 85% identical, more preferably about at least
20 90% identical, and even more preferably about at least 95% identical to a nucleic acid molecule having the nucleic acid sequence SEQ ID NO:1887 and/or SEQ ID NO:1890; also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is determined using the Compare function by maximum matching within the program
25 DNAsis Version 2.1 using default parameters.

 Another preferred flea PL4 protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80% identical, more preferably about at least 85% identical, more preferably about at least
30 90% identical, and even more preferably about at least 95% identical to a nucleic acid molecule having the nucleic acid sequence SEQ ID NO:1892, SEQ ID NO:1894, SEQ

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ID NO:1896 and/or SEQ ID NO:1899; also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is determined using the Compare function by maximum matching within the program DNAsis Version 2.1 using default parameters.

5 Another preferred flea SVP protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80% identical, more preferably about at least 85% identical, more preferably about at least 90% identical, and even more preferably about at least 95% identical to a nucleic acid
10 molecule having the nucleic acid sequence SEQ ID NO:1901 and/or SEQ ID NO:1904; also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is determined using the Compare function by maximum matching within the program DNAsis Version 2.1 using default parameters.

15 Another preferred flea VGCC protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80% identical, more preferably about at least 85% identical, more preferably about at least 90% identical, and even more preferably about at least 95% identical to a nucleic acid
20 molecule having the nucleic acid sequence SEQ ID NO:1906, SEQ ID NO:1908, SEQ ID NO:1910, SEQ ID NO:1912, SEQ ID NO:1914 and/or SEQ ID NO:1917; also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is determined using the Compare function by maximum matching within the program
25 DNAsis Version 2.1 using default parameters.

 Another preferred flea AUP protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80% identical, more preferably about at least 85% identical, more preferably about at least
30 90% identical, and even more preferably about at least 95% identical to a nucleic acid molecule having the nucleic acid sequence SEQ ID NO:1919 and/or SEQ ID NO:1922;

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also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is determined using the Compare function by maximum matching within the program DNAsis Version 2.1 using default parameters.

- 5 Another preferred flea 7B2 protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80% identical, more preferably about at least 85% identical, more preferably about at least 90% identical, and even more preferably about at least 95% identical to a nucleic acid
- 10 molecule having the nucleic acid sequence SEQ ID NO:1924, SEQ ID NO:1927 and/or SEQ ID NO:1929; also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is determined using the Compare function by maximum matching within the program DNAsis Version 2.1 using default parameters.
- 15 Another preferred flea HMT and/or HNC protein of the present invention includes a protein that is encoded by a nucleic acid molecule that is preferably at least about 70% identical, more preferably at least about 75% identical, more preferably at least about 80% identical, more preferably at least about 85% identical, more preferably at least about 90% identical, and even more preferably at least about 95% identical to a
- 20 nucleic acid molecule having a nucleic acid sequence of Table I, Table II, Table III and/or Table IV; also preferred are fragments (i.e. portions) of such proteins encoded by nucleic acid molecules that are at least about 18 nucleotides. Percent identity as used herein is determined using the Compare function by maximum matching within the program DNAsis Version 2.1 using default parameters.
- 25 Additional preferred flea ALN proteins of the present invention include proteins having the amino acid sequence SEQ ID NO:2 or SEQ ID NO:5, and proteins comprising homologues of a protein having the amino acid sequence SEQ ID NO:2 or SEQ ID NO:5, wherein such a homologue comprises at least one epitope that elicits an immune response against a protein having an amino acid sequence SEQ ID NO:2 or
- 30 SEQ ID NO:5. Likewise, also preferred are proteins encoded by nucleic acid molecules

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comprising nucleic acid sequence SEQ ID NO:1 and/or SEQ ID NO:4, or by homologues thereof.

Additional preferred flea CBP proteins of the present invention include proteins having the amino acid sequence SEQ ID NO:8 or SEQ ID NO:11, and proteins
5 comprising homologues of a protein having the amino acid sequence SEQ ID NO:8 or SEQ ID NO:11, wherein such a homologue comprises at least one epitope that elicits an immune response against a protein having an amino acid sequence SEQ ID NO:8 or SEQ ID NO:11. Likewise, also preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID NO:7 and/or SEQ ID NO:10, or by
10 homologues thereof.

Additional preferred flea NKAB proteins of the present invention include proteins having the amino acid sequence SEQ ID NO:14 or SEQ ID NO:17, and proteins comprising homologues of a protein having the amino acid sequence SEQ ID NO:14 or SEQ ID NO:17, wherein such a homologue comprises at least one epitope that elicits an
15 immune response against a protein having an amino acid sequence SEQ ID NO:14 or SEQ ID NO:17. Likewise, also preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID NO:13 and/or SEQ ID NO:16, or by homologues thereof.

Additional preferred flea LGIC proteins of the present invention include proteins
20 having the amino acid sequence SEQ ID NO:20, SEQ ID NO:23 or SEQ ID NO:1862, and proteins comprising homologues of a protein having the amino acid sequence SEQ ID NO:20, SEQ ID NO:23 or SEQ ID NO:1862, wherein such a homologue comprises at least one epitope that elicits an immune response against a protein having an amino acid sequence SEQ ID NO:20, SEQ ID NO:23 or SEQ ID NO:1862. Likewise, also
25 preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID NO:19, SEQ ID NO:22, SEQ ID NO:1859, SEQ ID NO:1861 and/or SEQ ID NO:1864 or by homologues thereof.

Additional preferred flea ANON proteins of the present invention include proteins having the amino acid sequence SEQ ID NO:26 or SEQ ID NO:29, and proteins
30 comprising homologues of a protein having the amino acid sequence SEQ ID NO:26 or SEQ ID NO:29, wherein such a homologue comprises at least one epitope that elicits an

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immune response against a protein having an amino acid sequence SEQ ID NO:26 or SEQ ID NO:29. Likewise, also preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID NO:25 and/or SEQ ID NO:28, or by homologues thereof.

5 Additional preferred flea MALV proteins of the present invention include proteins having the amino acid sequence SEQ ID NO:32 or SEQ ID NO:35, and proteins comprising homologues of a protein having the amino acid sequence SEQ ID NO:32 or SEQ ID NO:35, wherein such a homologue comprises at least one epitope that elicits an immune response against a protein having an amino acid sequence SEQ ID NO:32 or
10 SEQ ID NO:35. Likewise, also preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID NO:31 and/or SEQ ID NO:34, or by homologues thereof.

Additional preferred flea OS-D proteins of the present invention include proteins having the amino acid sequence SEQ ID NO:38 or SEQ ID NO:41, and proteins
15 comprising homologues of a protein having the amino acid sequence SEQ ID NO:38 or SEQ ID NO:41, wherein such a homologue comprises at least one epitope that elicits an immune response against a protein having an amino acid sequence SEQ ID NO:38 or SEQ ID NO:41. Likewise, also preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID NO:37 and/or SEQ ID NO:40, or
20 by homologues thereof.

Additional preferred flea NMDA proteins of the present invention include proteins having the amino acid sequence SEQ ID NO:44 or SEQ ID NO:47, and proteins comprising homologues of a protein having the amino acid sequence SEQ ID NO:44 or SEQ ID NO:47, wherein such a homologue comprises at least one epitope that elicits an
25 immune response against a protein having an amino acid sequence SEQ ID NO:44 or SEQ ID NO:47. Likewise, also preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID NO:43 and/or SEQ ID NO:46, or by homologues thereof.

Additional preferred flea CLBP proteins of the present invention include proteins
30 having the amino acid sequence SEQ ID NO:154, SEQ ID NO:157, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:166 or SEQ ID NO:169, and proteins comprising

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homologues of a protein having the amino acid sequence SEQ ID NO:154, SEQ ID NO:157, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:166 or SEQ ID NO:169, wherein such a homologue comprises at least one epitope that elicits an immune response against a protein having an amino acid sequence SEQ ID NO:154, SEQ ID
5 NO:157, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:166 or SEQ ID NO:169. Likewise, also preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID NO:153, SEQ ID NO:156, SEQ ID NO:159, SEQ ID NO:162, SEQ ID NO:165 and/or SEQ ID NO:168, or by homologues thereof.

Additional preferred flea NAH proteins of the present invention include proteins
10 having the amino acid sequence SEQ ID NO:1868, and proteins comprising homologues of a protein having the amino acid sequence SEQ ID NO:1868, wherein such a homologue comprises at least one epitope that elicits an immune response against a protein having an amino acid sequence SEQ ID NO:1868. Likewise, also preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID
15 NO:1867 and/or SEQ ID NO:1870, or by homologues thereof.

Additional preferred flea CLIC proteins of the present invention include proteins having the amino acid sequence SEQ ID NO:1873, and proteins comprising homologues of a protein having the amino acid sequence SEQ ID NO:1873, wherein such a
20 homologue comprises at least one epitope that elicits an immune response against a protein having an amino acid sequence SEQ ID NO:1873. Likewise, also preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID NO:1872 and/or SEQ ID NO:1875, or by homologues thereof.

Additional preferred flea PL2 proteins of the present invention include proteins having the amino acid sequence SEQ ID NO:1883, and proteins comprising homologues
25 of a protein having the amino acid sequence SEQ ID NO:1883, wherein such a homologue comprises at least one epitope that elicits an immune response against a protein having an amino acid sequence SEQ ID NO:1883. Likewise, also preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1880, SEQ ID NO:1882 and/or SEQ ID
30 NO:1885, or by homologues thereof.

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Additional preferred flea PL3 proteins of the present invention include proteins having the amino acid sequence SEQ ID NO:1888, and proteins comprising homologues of a protein having the amino acid sequence SEQ ID NO:1888, wherein such a homologue comprises at least one epitope that elicits an immune response against a protein having an amino acid sequence SEQ ID NO:1888. Likewise, also preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID NO:1887 and/or SEQ ID NO:1890, or by homologues thereof.

Additional preferred flea PL4 proteins of the present invention include proteins having the amino acid sequence SEQ ID NO:1897, and proteins comprising homologues of a protein having the amino acid sequence SEQ ID NO:1897, wherein such a homologue comprises at least one epitope that elicits an immune response against a protein having an amino acid sequence SEQ ID NO:1897. Likewise, also preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID NO:1892, SEQ ID NO:1894, SEQ ID NO:1896 and/or SEQ ID NO:1899, or by homologues thereof.

Additional preferred flea SVP proteins of the present invention include proteins having the amino acid sequence SEQ ID NO:1902, and proteins comprising homologues of a protein having the amino acid sequence SEQ ID NO:1902, wherein such a homologue comprises at least one epitope that elicits an immune response against a protein having an amino acid sequence SEQ ID NO:1902. Likewise, also preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID NO:1901 and/or SEQ ID NO:1904, or by homologues thereof.

Additional preferred flea VGCC proteins of the present invention include proteins having the amino acid sequence SEQ ID NO:1915, and proteins comprising homologues of a protein having the amino acid sequence SEQ ID NO:1915, wherein such a homologue comprises at least one epitope that elicits an immune response against a protein having an amino acid sequence SEQ ID NO:1915. Likewise, also preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID NO:1906, SEQ ID NO:1908, SEQ ID NO:1910, SEQ ID NO:1912, SEQ ID NO:1914 and/or SEQ ID NO:1917, or by homologues thereof.

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Additional preferred flea AUP proteins of the present invention include proteins having the amino acid sequence SEQ ID NO:1920, and proteins comprising homologues of a protein having the amino acid sequence SEQ ID NO:1920, wherein such a homologue comprises at least one epitope that elicits an immune response against a protein having an amino acid sequence SEQ ID NO:1920. Likewise, also preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID NO:1919 and/or SEQ ID NO:1922, or by homologues thereof.

Additional preferred flea 7B2 proteins of the present invention include proteins having the amino acid sequence SEQ ID NO:1925 or SEQ ID NO:1930, and proteins comprising homologues of a protein having the amino acid sequence SEQ ID NO:1925 or SEQ ID NO:1930, wherein such a homologue comprises at least one epitope that elicits an immune response against a protein having an amino acid sequence SEQ ID NO:1925 or SEQ ID NO:1930. Likewise, also preferred are proteins encoded by nucleic acid molecules comprising nucleic acid sequence SEQ ID NO:1924, SEQ ID NO:1927 and/or SEQ ID NO:1929, or by homologues thereof.

Additional preferred flea HMT and/or HNC proteins of the present invention include proteins having an amino acid sequence encoded by a nucleic acid sequence of Table I, Table II, Table III and/or Table IV, and proteins comprising homologues of a protein encoded by a nucleic acid sequence of Table I, Table II, Table III and/or Table IV, wherein such a homologue comprises at least one epitope that elicits an immune response against a protein encoded by a nucleic acid sequence of Table I, Table II, Table III and/or Table IV.

A preferred isolated protein of the present invention is a protein encoded by at least one of the following nucleic acid molecules: nCfALN₂₀₅₇, nCfALN₁₁₅₂, nCfCBP₁₁₂₈, nCfCBP₈₁₆, nCfNKAB₁₇₁₄, nCfNKAB₉₇₈, nCfLGIC₂₂₄₀, nCfLGIC₁₇₀₇, nCfANON₁₄₂₉, nCfANON₁₁₉₄, nCfMALV₇₆₅, nCfMALV₇₆₂, nCfOSD₆₀₄, nCfOSD₄₀₅, nCfNMDA₁₂₂₇, nCfNMDA₇₃₈, nCfCLBP1A₆₃₃, nCfCLBP1A₄₄₁, nCfCLBP2A₆₃₁, nCfCLBP2A₄₄₁, nCfLGIC₂₇₃₉, nCfLGIC₂₀₁₆, nCfNAH₂₀₈₀, nCfNAH₁₈₂₄, nCfCLIC₂₂₈₃, nCfCLIC₇₈₆, nCfPL2₁₂₉₁, nCfPL2₁₁₇₃, nCfPL3₄₀₆, nCfPL3₂₄₃, nCfPL4₉₇₄, nCfPL4₁₀₄₃, nCfPL4₁₀₆₂, nCfPL4₈₅₅, nCfSVP₁₈₇₅, nCfSVP₁₅₉₀, nCfVGCC₃₈₁, nCfVGCC₂₁₉₁, nCfVGCC₁₉₆₈, nCfVGCC₆₇₃, nCfVGCC₃₁₂₆, nCfVGCC₂₅₅₃, nCfAUP₁₁₈₁, nCfAUP₃₀₆, nCf7B2₂₁₆₁,

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nCf7B2₈₀₁, nCf7B2₇₄₁ or allelic variants of any of these nucleic acid molecules. Another preferred isolated protein is encoded by a nucleic acid molecule having nucleic acid sequence SEQ ID NO:1, SEQ ID NO:4, SEQ ID NO:7, SEQ ID NO:10, SEQ ID NO:13, SEQ ID NO:16, SEQ ID NO:19, SEQ ID NO:22, SEQ ID NO:25, SEQ ID NO:28, SEQ ID NO:31, SEQ ID NO:34, SEQ ID NO:37, SEQ ID NO:40, SEQ ID NO:43, SEQ ID NO:46, SEQ ID NO:153, SEQ ID NO:156, SEQ ID NO:159, SEQ ID NO:162, SEQ ID NO:165, SEQ ID NO:168, SEQ ID NO:1859, SEQ ID NO:1861, SEQ ID NO:1864, SEQ ID NO:1867, SEQ ID NO:1870, SEQ ID NO:1872, SEQ ID NO:1875, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1881, SEQ ID NO:1882, SEQ ID NO:1885, SEQ ID NO:1887, SEQ ID NO:1890, SEQ ID NO:1892, SEQ ID NO:1894, SEQ ID NO:1896, SEQ ID NO:1899, SEQ ID NO:1901, SEQ ID NO:1904, SEQ ID NO:1906, SEQ ID NO:1908, SEQ ID NO:1910, SEQ ID NO:1912, SEQ ID NO:1914, SEQ ID NO:1917, SEQ ID NO:1919, SEQ ID NO:1922, SEQ ID NO:1924, SEQ ID NO:1927, and/or SEQ ID NO:1929; or a protein encoded by an allelic variant of any of these listed nucleic acid molecules.

Preferred proteins of the present invention include proteins that are at least about 70%, preferably at least about 80%, more preferably at least about 85%, even more preferably at least about 90%, even more preferably at least about 95%, and even more preferably about 100% identical to PCfALN₃₈₄, PCfCBP₂₇₂, PCfNKAB₃₂₆, PCfLGIC₅₆₉, PCfANON₃₉₈, PCfMALV₂₅₄, PCfOSD₁₃₅, PCfNMDA₂₄₆, PCfCLBP1A₁₄₇ or PCfCLBP2A₁₄₇. Additionally preferred are proteins encoded by allelic variants of a nucleic acid molecules encoding proteins PCfALN₃₈₄, PCfCBP₂₇₂, PCfNKAB₃₂₆, PCfLGIC₅₆₉, PCfANON₃₉₈, PCfMALV₂₅₄, PCfOSD₁₃₅, PCfNMDA₂₄₆, PCfCLBP1A₁₄₇, PCfCLBP2A₁₄₇, PCfLGIC₆₇₂, PCfNAH₆₀₈, PCfCLIC₂₆₂, PCfPL2₃₉₁, PCfPL3₈₁, PCfPL4₂₈₅, PCfSVP₅₃₀, PCfVGCC₈₅₁, PCfAUP₁₀₂, PCf7B2₂₆₇, PCf7B2₂₄₇. Also preferred are fragments thereof having at least about 6 amino acid residues.

Other preferred HMT and HNC proteins of the present invention include proteins having amino acid sequences that are at least about 70%, preferably at least about 80%, more preferably at least about 85%, even more preferably at least about 90%, even more preferably at least about 95%, and even more preferably about 100% identical to amino acid sequence SEQ ID NO:2, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:20, SEQ ID

NO:26, SEQ ID NO:32, SEQ ID NO:38, SEQ ID NO:44, SEQ ID NO:154, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873, SEQ ID NO:1879, SEQ ID NO:1883, SEQ ID NO:1888, SEQ ID NO:1897, SEQ ID NO:1902, SEQ ID NO:1915, SEQ ID NO:1920, SEQ ID NO:1925, and/or SEQ ID NO:1930; and proteins encoded by allelic variants of nucleic acid molecules encoding HMT and HNC proteins having amino acid sequences SEQ ID NO:2, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:20, SEQ ID NO:26, SEQ ID NO:32, SEQ ID NO:38, SEQ ID NO:44, SEQ ID NO:154, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873, SEQ ID NO:1879, SEQ ID NO:1883, SEQ ID NO:1888, SEQ ID NO:1897, SEQ ID NO:1902, SEQ ID NO:1915, SEQ ID NO:1920, SEQ ID NO:1925, and/or SEQ ID NO:1930. Also preferred are fragments thereof having at least about 6 amino acid residues.

In one embodiment of the present invention, *C. felis* HMT and HNC proteins comprise amino acid sequence SEQ ID NO:2, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:20, SEQ ID NO:26, SEQ ID NO:32, SEQ ID NO:38, SEQ ID NO:44, SEQ ID NO:154, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873, SEQ ID NO:1879, SEQ ID NO:1883, SEQ ID NO:1888, SEQ ID NO:1897, SEQ ID NO:1902, SEQ ID NO:1915, SEQ ID NO:1920, SEQ ID NO:1925, and/or SEQ ID NO:1930 (including, but not limited to, the proteins consisting of amino acid sequence SEQ ID NO:2, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:20, SEQ ID NO:26, SEQ ID NO:32, SEQ ID NO:38, SEQ ID NO:44, SEQ ID NO:154, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873, SEQ ID NO:1879, SEQ ID NO:1883, SEQ ID NO:1888, SEQ ID NO:1897, SEQ ID NO:1902, SEQ ID NO:1915, SEQ ID NO:1920, SEQ ID NO:1925, and/or SEQ ID NO:1930, fusion proteins and multivalent proteins), and proteins encoded by allelic variants of nucleic acid molecules encoding proteins having amino acid sequence SEQ ID NO:2, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:20, SEQ ID NO:26, SEQ ID NO:32, SEQ ID NO:38, SEQ ID NO:44, SEQ ID NO:154, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873, SEQ ID NO:1879, SEQ ID NO:1883, SEQ ID

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NO:1888, SEQ ID NO:1897, SEQ ID NO:1902, SEQ ID NO:1915, SEQ ID NO:1920, SEQ ID NO:1925, and/or SEQ ID NO:1930.

In one embodiment, a preferred flea HMT or HNC protein comprises an amino acid sequence of at least about 35 amino acids, preferably at least about 50 amino acids, more preferably at least about 100 amino acids, more preferably at least about 200 amino acids, more preferably at least about 250 amino acids, more preferably at least about 300 amino acids, more preferably at least about 350 amino acids, more preferably at least about 400 amino acids, more preferably at least about 450 amino acids, more preferably at least about 500 amino acids, even more preferably at least about 550 amino acids, and even more preferably at least about 575 amino acids. In another embodiment, preferred flea HMT and HNC proteins comprise full-length proteins, i.e., proteins encoded by full-length coding regions, or post-translationally modified proteins thereof, such as mature proteins from which initiating methionine and/or signal sequences or "pro" sequences have been removed.

A fragment of an HMT and/or HNC protein of the present invention preferably comprises at least about 5 amino acids, more preferably at least about 10 amino acids, more preferably at least about 15 amino acids, more preferably at least about 20 amino acids, more preferably at least about 25 amino acids, more preferably at least about 30 amino acids, more preferably at least about 35 amino acids, more preferably at least about 40 amino acids, more preferably at least about 45 amino acids, more preferably at least about 50 amino acids, more preferably at least about 55 amino acids, more preferably at least about 60 amino acids, more preferably at least about 65 amino acids, more preferably at least about 70 amino acids, more preferably at least about 75 amino acids, more preferably at least about 80 amino acids, more preferably at least about 85 amino acids, more preferably at least about 90 amino acids, more preferably at least about 95 amino acids, and even more preferably at least about 100 amino acids in length.

Additional preferred HMT and HNC proteins of the present invention include proteins encoded by nucleic acid molecules comprising at least a portion of nCfALN₂₀₅₇, nCfALN₁₁₅₂, nCfCBP₁₁₂₈, nCfCBP₈₁₆, nCfNKAB₁₇₁₄, nCfNKAB₉₇₈, nCfLGIC₂₂₄₀, nCfLGIC₁₇₀₇, nCfANON₁₄₂₉, nCfANON₁₁₉₄, nCfMALV₇₆₅, nCfMALV₇₆₂, nCfOSD₆₀₄, nCfOSD₄₀₅, nCfNMDA₁₂₂₇, nCfNMDA₇₃₈, nCfCLBP1A₆₃₃, nCfCLBP1A₄₄₁,

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nCfCLBP2A₆₃₁, nCfCLBP2A₄₄₁, nCfLGIC₂₇₃₉, nCfLGIC₂₀₁₆, nCfNAH₂₀₈₀, nCfNAH₁₈₂₄,
nCfCLIC₂₂₈₃, nCfCLIC₇₈₆, nCfPL2₁₂₉₁, nCfPL2₁₁₇₃, nCfPL3₄₀₆, nCfPL3₂₄₃, nCfPL4₉₇₄,
nCfPL4₁₀₄₃, nCfPL4₁₀₆₂, nCfPL4₈₅₅, nCfSVP₁₈₇₅, nCfSVP₁₅₉₀, nCfVGCC₃₈₁,
nCfVGCC₂₁₉₁, nCfVGCC₁₉₆₈, nCfVGCC₆₇₃, nCfVGCC₃₁₂₆, nCfVGCC₂₅₅₃, nCfAUP₁₁₈₁,
5 nCfAUP₃₀₆, nCf7B2₂₁₆₁, nCf7B2₈₀₁, nCf7B2₇₄₁ as well as HMT and HNC proteins
encoded by allelic variants of such nucleic acid molecules. A portion of such HMT and
HNC nucleic acid molecule is preferably at least 18 nucleotides in length.

Also preferred are HMT and HNC proteins encoded by nucleic acid molecules
having nucleic acid sequences comprising at least a portion of SEQ ID NO:1, SEQ ID
10 NO:4, SEQ ID NO:7, SEQ ID NO:10, SEQ ID NO:13, SEQ ID NO:16, SEQ ID NO:19,
SEQ ID NO:22, SEQ ID NO:25, SEQ ID NO:28, SEQ ID NO:31, SEQ ID NO:34, SEQ
ID NO:37, SEQ ID NO:40, SEQ ID NO:43, SEQ ID NO:46, SEQ ID NO:153, SEQ ID
NO:156, SEQ ID NO:159, SEQ ID NO:162, SEQ ID NO:165, SEQ ID NO:168, SEQ ID
NO:1859, SEQ ID NO:1861, SEQ ID NO:1864, SEQ ID NO:1867, SEQ ID NO:1870,
15 SEQ ID NO:1872, SEQ ID NO:1875, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID
NO:1881, SEQ ID NO:1882, SEQ ID NO:1885, SEQ ID NO:1887, SEQ ID NO:1890,
SEQ ID NO:1892, SEQ ID NO:1894, SEQ ID NO:1896, SEQ ID NO:1899, SEQ ID
NO:1901, SEQ ID NO:1904, SEQ ID NO:1906, SEQ ID NO:1908, SEQ ID NO:1910,
SEQ ID NO:1912, SEQ ID NO:1914, SEQ ID NO:1917, SEQ ID NO:1919, SEQ ID
20 NO:1922, SEQ ID NO:1924, SEQ ID NO:1927, and/or SEQ ID NO:1929, as well as
allelic variants of these nucleic acid molecules. A portion of such HMT and HNC
nucleic acid molecule is preferably at least 18 nucleotides in length.

In another embodiment, a preferred flea HMT and/or HNC protein of the present
invention is encoded by a nucleic acid molecule comprising at least about 15
25 nucleotides, more preferably at least about 18 nucleotides, more preferably at least about
20 nucleotides, more preferably at least about 25 nucleotides, more preferably at least
about 30 nucleotides, more preferably at least about 40 nucleotides, more preferably at
least about 50 nucleotides, more preferably at least about 100 nucleotides, more
preferably at least about 150 nucleotides, more preferably at least about 350 nucleotides,
30 more preferably at least about 450 nucleotides, more preferably at least about 550
nucleotides, more preferably at least about 650 nucleotides, more preferably at least

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about 750 nucleotides, more preferably at least about 1000 nucleotides, more preferably at least about 1500 nucleotides, more preferably at least about 1750 nucleotides more preferably at least about 2000 nucleotides, and even more preferably at least about 2250 nucleotides in length. Within this embodiment is a HMT protein encoded by at least a

5 portion of nCfALN₂₀₅₇, nCfALN₁₁₅₂, nCfCBP₁₁₂₈, nCfCBP₈₁₆, nCfNKAB₁₇₁₄, nCfNKAB₉₇₈, nCfLGIC₂₂₄₀, nCfLGIC₁₇₀₇, nCfANON₁₄₂₉, nCfANON₁₁₉₄, nCfMALV₇₆₅, nCfMALV₇₆₂, nCfOSD₆₀₄, nCfOSD₄₀₅, nCfNMDA₁₂₂₇, nCfNMDA₇₃₈, nCfCLBP1A₆₃₃, nCfCLBP1A₄₄₁, nCfCLBP2A₆₃₁, nCfCLBP2A₄₄₁, nCfLGIC₂₇₃₉, nCfLGIC₂₀₁₆, nCfNAH₂₀₈₀, nCfNAH₁₈₂₄, nCfCLIC₂₂₈₃, nCfCLIC₇₈₆, nCfPL2₁₂₉₁, nCfPL2₁₁₇₃, nCfPL3₄₀₆,

10 nCfPL3₂₄₃, nCfPL4₉₇₄, nCfPL4₁₀₄₃, nCfPL4₁₀₆₂, nCfPL4₈₅₅, nCfSVP₁₈₇₅, nCfSVP₁₅₉₀, nCfVGCC₃₈₁, nCfVGCC₂₁₉₁, nCfVGCC₁₉₆₈, nCfVGCC₆₇₃, nCfVGCC₃₁₂₆, nCfVGCC₂₅₅₃, nCfAUP₁₁₈₁, nCfAUP₃₀₆, nCf7B2₂₁₆₁, nCf7B2₈₀₁, nCf7B2₇₄₁ or by an allelic variant of any of these nucleic acid molecules. In yet another embodiment, preferred flea HMT and HNC proteins of the present invention are encoded by nucleic acid molecules

15 comprising apparently full-length HMT or HNC coding regions respectively, i.e., nucleic acid molecules encoding an apparently full-length HMT or HNC proteins.

Preferred flea HMT and HNC proteins of the present invention can be used to develop inhibitors that, when administered to an animal in an effective manner, are capable of protecting that animal from flea infestation. In accordance with the present

20 invention, the ability of an inhibitor of the present invention to protect an animal from flea infestation refers to the ability of that protein to, for example, treat, ameliorate and/or prevent infestation caused by fleas. In particular, the phrase "to protect an animal from flea infestation" refers to reducing the potential for flea population expansion on and around the animal (i.e., reducing the flea burden). Preferably, the flea population

25 size is decreased, optimally to an extent that the animal is no longer bothered by fleas. A host animal, as used herein, is an animal from which fleas can feed by attaching to and feeding through the skin of the animal. Fleas, and other ectoparasites, can live on a host animal for an extended period of time or can attach temporarily to an animal in order to feed. At any given time, a certain percentage of a flea population can be on a host

30 animal whereas the remainder can be in the environment of the animal. Such an environment can include not only adult fleas, but also flea eggs and/or flea larvae. The

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environment can be of any size such that fleas in the environment are able to jump onto and off of a host animal. For example, the environment of an animal can include plants, such as crops, from which fleas infest an animal. As such, it is desirable not only to reduce the flea burden on an animal per se, but also to reduce the flea burden in the
5 environment of the animal.

Suitable fleas to target include any flea that is essentially incapable of causing disease in an animal administered an inhibitor of the present invention. As such, fleas to target include any flea that produces a protein that can be targeted by an inhibitory compound that inhibits a flea HMT or HNC protein function, thereby resulting in the
10 decreased ability of the parasite to cause disease in an animal. Preferred fleas to target include fleas of the following genera: *Ctenocephalides*, *Cyopsyllus*, *Diamanus* (*Oropsylla*), *Echidnophaga*, *Nosopsyllus*, *Pulex*, *Tunga*, and *Xenopsylla*, with those of the species *Ctenocephalides canis*, *Ctenocephalides felis*, *Diamanus montanus*, *Echidnophaga gallinacea*, *Nosopsyllus faciatus*, *Pulex irritans*, *Pulex simulans*, *Tunga*
15 *penetrans* and *Xenopsylla cheopis* being more preferred, with *C. felis* being even more preferred. Such fleas are also preferred for the isolation of proteins or nucleic acid molecules of the present invention.

One embodiment of a flea HMT and/or HNC protein of the present invention is a fusion protein that includes a flea HMT and/or HNC protein-containing domain attached
20 to one or more fusion segments. Suitable fusion segments for use with the present invention include, but are not limited to, segments that can: enhance a protein's stability; act as an immunopotentiator to enhance an immune response against a flea HMT and/or HNC protein; and/or assist in purification of a flea HMT and/or HNC protein (e.g., by affinity chromatography). A suitable fusion segment can be a domain of any size that
25 has the desired function (e.g., imparts increased stability, imparts increased immunogenicity to a protein, and/or simplifies purification of a protein). Fusion segments can be joined to amino and/or carboxyl termini of the flea HMT-containing and/or HNC-containing domain of the protein and can be susceptible to cleavage in order to enable straight-forward recovery of a flea HMT and/or HNC protein. Fusion
30 proteins are preferably produced by culturing a recombinant cell transformed with a fusion nucleic acid molecule that encodes a protein including the fusion segment

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attached to either the carboxyl and/or amino terminal end of an HMT-containing and/or HNC-containing domain. Preferred fusion segments include a metal binding domain (e.g., a poly-histidine segment); an immunoglobulin binding domain (e.g., Protein A; Protein G; T cell; B cell; Fc receptor or complement protein antibody-binding domains);
5 a sugar binding domain (e.g., a maltose binding domain); and/or a "tag" domain (e.g., at least a portion of β -galactosidase, a strep tag peptide, a T7 tag peptide, a Flag™ peptide, or other domains that can be purified using compounds that bind to the domain, such as monoclonal antibodies). More preferred fusion segments include metal binding domains, such as a poly-histidine segment; a maltose binding domain; a strep tag
10 peptide, such as that available from Biometra in Tampa, FL; and an S10 peptide.

The present invention also includes mimetopes of flea HMT and/or HNC proteins of the present invention. As used herein, a mimetope of a flea HMT and/or HNC protein of the present invention refers to any compound that is able to mimic the activity of such an HMT and/or HNC protein, often because the mimetope has a
15 structure that mimics the particular HMT and/or HNC protein. Mimetopes can be, but are not limited to: peptides that have been modified to decrease their susceptibility to degradation such as all-D retro peptides; anti-idiotypic and/or catalytic antibodies, or fragments thereof; non-proteinaceous immunogenic portions of an isolated protein (e.g., carbohydrate structures); and synthetic or natural organic molecules, including nucleic
20 acids. Such mimetopes can be designed using computer-generated structures of proteins of the present invention. Mimetopes can also be obtained by generating random samples of molecules, such as oligonucleotides, peptides or other organic molecules, and screening such samples by affinity chromatography techniques using the corresponding binding partner.

25 Another embodiment of the present invention is an isolated nucleic acid molecule comprising a flea HMT and/or HNC nucleic acid molecule, i.e. a nucleic acid molecule that can be isolated from a HMT cDNA library, from a HNC cDNA library, or from both libraries. As used herein, HMT and HNC nucleic acid molecules has the same meaning as HMT and/or HNC nucleic acid molecule. The identifying
30 characteristics of such nucleic acid molecules are heretofore described. A nucleic acid molecule of the present invention can include an isolated natural flea HMT and/or HNC

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gene or a homologue thereof, the latter of which is described in more detail below. A nucleic acid molecule of the present invention can include one or more regulatory regions, full-length or partial coding regions, or combinations thereof. The minimal size of a nucleic acid molecule of the present invention is a size sufficient to allow the formation of a stable hybrid (i.e., hybridization under stringent hybridization conditions) with the complementary sequence of another nucleic acid molecule. As such, the minimal size of a HMT and/or HNC nucleic acid molecule of the present invention is from about 12 to about 18 nucleotides in length. Suitable and preferred fleas from which to isolate nucleic acid molecules of the present invention are disclosed herein. Particularly preferred HMT and/or HNC nucleic acid molecules include *C. felis* HMT and/or HNC nucleic acid molecules.

In accordance with the present invention, an isolated nucleic acid molecule is a nucleic acid molecule that has been removed from its natural milieu (i.e., that has been subjected to human manipulation) and can include DNA, RNA, or derivatives of either DNA or RNA. As such, "isolated" does not reflect the extent to which the nucleic acid molecule has been purified. Isolated flea HMT and/or HNC nucleic acid molecules of the present invention, or homologues thereof, can be isolated from a natural source or produced using recombinant DNA technology (e.g., polymerase chain reaction (PCR) amplification or cloning) or chemical synthesis. Isolated flea HMT and/or HNC nucleic acid molecules, and homologues thereof, can include, for example, natural allelic variants and nucleic acid molecules modified by nucleotide insertions, deletions, substitutions, and/or inversions in a manner such that the modifications do not substantially interfere with the nucleic acid molecule's ability to encode a HMT and/or HNC protein of the present invention.

A flea HMT and/or HNC nucleic acid molecule homologue can be produced using a number of methods known to those skilled in the art, see, for example, Sambrook et al., *ibid*. For example, nucleic acid molecules can be modified using a variety of techniques including, but not limited to, classic mutagenesis and recombinant DNA techniques such as site-directed mutagenesis, chemical treatment, restriction enzyme cleavage, ligation of nucleic acid fragments, PCR amplification, synthesis of oligonucleotide mixtures and ligation of mixture groups to "build" a mixture of nucleic

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acid molecules, and combinations thereof. Nucleic acid molecule homologues can be selected by hybridization with flea HMT and/or HNC nucleic acid molecules or by screening the function of a protein encoded by the nucleic acid molecule (e.g., ability to elicit an immune response against at least one epitope of a flea HMT or HNC protein or
5 to effect HMT or HNC activity).

An isolated nucleic acid molecule of the present invention can include a nucleic acid sequence that encodes at least one flea HMT or HNC protein of the present invention, examples of such proteins being disclosed herein. Although the phrase "nucleic acid molecule" primarily refers to the physical nucleic acid molecule and the
10 phrase "nucleic acid sequence" primarily refers to the sequence of nucleotides on the nucleic acid molecule, the two phrases can be used interchangeably, especially with respect to a nucleic acid molecule, or a nucleic acid sequence, being capable of encoding a flea HMT or HNC protein.

A preferred nucleic acid molecule of the present invention, when administered to
15 an animal, is capable of protecting that animal from flea infestation. As will be disclosed in more detail below, such a nucleic acid molecule can be, or encode, an antisense RNA, a molecule capable of triple helix formation, a ribozyme, or other nucleic acid-based drug compound. In additional embodiments, a nucleic acid molecule of the present invention can encode a protective protein (e.g., an HMT or HNC protein
20 of the present invention), the nucleic acid molecule being delivered to the animal, for example, by direct injection (i.e., as a genetic vaccine) or in a vehicle such as a recombinant virus vaccine or a recombinant cell vaccine.

In one embodiment of the present invention, a preferred flea HMT and/or HNC nucleic acid molecule includes an isolated nucleic acid molecule that hybridizes under
25 conditions that preferably allow less than or equal to about 30% base pair mismatch, more preferably under conditions that allow less than or equal to about 25% base pair mismatch, more preferably under conditions that allow less than or equal to about 20% base pair mismatch, more preferably under conditions that allow less than or equal to about 15% base pair mismatch, more preferably under conditions that allow less than or
30 equal to about 10% base pair mismatch and even more preferably under conditions that allow less than or equal to about 5% base pair mismatch with a nucleic acid molecule

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selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:153, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:161, SEQ ID NO:162, SEQ ID NO:164, SEQ ID NO:165, SEQ ID NO:167, SEQ ID NO:168, SEQ ID NO:170, SEQ ID NO:1859, SEQ ID NO:1860, SEQ ID NO:1861, SEQ ID NO:1863, SEQ ID NO:1864, SEQ ID NO:1866, SEQ ID NO:1867, SEQ ID NO:1869, SEQ ID NO:1870, SEQ ID NO:1871, SEQ ID NO:1872, SEQ ID NO:1874, SEQ ID NO:1875, SEQ ID NO:1876, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1880, SEQ ID NO:1881, SEQ ID NO:1882, SEQ ID NO:1884, SEQ ID NO:1885, SEQ ID NO:1886, SEQ ID NO:1887, SEQ ID NO:1889, SEQ ID NO:1890, SEQ ID NO:1891, SEQ ID NO:1892, SEQ ID NO:1893, SEQ ID NO:1894, SEQ ID NO:1895, SEQ ID NO:1896, SEQ ID NO:1898, SEQ ID NO:1899, SEQ ID NO:1900, SEQ ID NO:1901, SEQ ID NO:1903, SEQ ID NO:1904, SEQ ID NO:1905, SEQ ID NO:1906, SEQ ID NO:1907, SEQ ID NO:1908, SEQ ID NO:1909, SEQ ID NO:1910, SEQ ID NO:1911, SEQ ID NO:1912, SEQ ID NO:1913, SEQ ID NO:1914, SEQ ID NO:1916, SEQ ID NO:1917, SEQ ID NO:1918, SEQ ID NO:1919, SEQ ID NO:1921, SEQ ID NO:1922, SEQ ID NO:1923, SEQ ID NO:1924, SEQ ID NO:1926, SEQ ID NO:1927, SEQ ID NO:1928, SEQ ID NO:1929, and/or SEQ ID NO:1931, a nucleic acid molecule of Table I, Table II, Table III or Table IV and/or a nucleic acid molecule that is complementary to a nucleic acid molecule of Table I, Table II, Table III or Table IV.

Another embodiment of the present invention includes a HMT and/or HNC nucleic acid molecule, wherein said nucleic acid molecule hybridizes, in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:18, SEQ

ID NO:19, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:153, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:161, SEQ ID NO:162, SEQ ID NO:164, SEQ ID NO:165, SEQ ID NO:167, SEQ ID NO:168, SEQ ID NO:170, SEQ ID NO:1859, SEQ ID NO:1860, SEQ ID NO:1861, SEQ ID NO:1863, SEQ ID NO:1864, SEQ ID NO:1866, SEQ ID NO:1867, SEQ ID NO:1869, SEQ ID NO:1870, SEQ ID NO:1871, SEQ ID NO:1872, SEQ ID NO:1874, SEQ ID NO:1875, SEQ ID NO:1876, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1880, SEQ ID NO:1881, SEQ ID NO:1882, SEQ ID NO:1884, SEQ ID NO:1885, SEQ ID NO:1886, SEQ ID NO:1887, SEQ ID NO:1889, SEQ ID NO:1890, SEQ ID NO:1891, SEQ ID NO:1892, SEQ ID NO:1893, SEQ ID NO:1894, SEQ ID NO:1895, SEQ ID NO:1896, SEQ ID NO:1898, SEQ ID NO:1899, SEQ ID NO:1900, SEQ ID NO:1901, SEQ ID NO:1903, SEQ ID NO:1904, SEQ ID NO:1905, SEQ ID NO:1906, SEQ ID NO:1907, SEQ ID NO:1908, SEQ ID NO:1909, SEQ ID NO:1910, SEQ ID NO:1911, SEQ ID NO:1912, SEQ ID NO:1913, SEQ ID NO:1914, SEQ ID NO:1916, SEQ ID NO:1917, SEQ ID NO:1918, SEQ ID NO:1919, SEQ ID NO:1921, SEQ ID NO:1922, SEQ ID NO:1923, SEQ ID NO:1924, SEQ ID NO:1926, SEQ ID NO:1927, SEQ ID NO:1928, SEQ ID NO:1929, and/or SEQ ID NO:1931, a nucleic acid molecule of Table I, Table II, Table III or Table IV and/or a nucleic acid molecule that is complementary to a nucleic acid molecule of Table I, Table II, Table III or Table IV. Additional preferred nucleic acid molecules of the present invention include oligonucleotides of an isolated nucleic acid molecule, wherein said nucleic acid molecule hybridizes, in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C, to an isolated nucleic acid molecule selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:36, SEQ ID

NO:37, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:43, SEQ ID
NO:45, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:153, SEQ ID NO:155, SEQ ID
NO:156, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:161, SEQ ID NO:162, SEQ ID
NO:164, SEQ ID NO:165, SEQ ID NO:167, SEQ ID NO:168, SEQ ID NO:170, SEQ ID
5 NO:1859, SEQ ID NO:1860, SEQ ID NO:1861, SEQ ID NO:1863, SEQ ID NO:1864,
SEQ ID NO:1866, SEQ ID NO:1867, SEQ ID NO:1869, SEQ ID NO:1870, SEQ ID
NO:1871, SEQ ID NO:1872, SEQ ID NO:1874, SEQ ID NO:1875, SEQ ID NO:1876,
SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1880, SEQ ID NO:1881, SEQ ID
NO:1882, SEQ ID NO:1884, SEQ ID NO:1885, SEQ ID NO:1886, SEQ ID NO:1887,
10 SEQ ID NO:1889, SEQ ID NO:1890, SEQ ID NO:1891, SEQ ID NO:1892, SEQ ID
NO:1893, SEQ ID NO:1894, SEQ ID NO:1895, SEQ ID NO:1896, SEQ ID NO:1898,
SEQ ID NO:1899, SEQ ID NO:1900, SEQ ID NO:1901, SEQ ID NO:1903, SEQ ID
NO:1904, SEQ ID NO:1905, SEQ ID NO:1906, SEQ ID NO:1907, SEQ ID NO:1908,
SEQ ID NO:1909, SEQ ID NO:1910, SEQ ID NO:1911, SEQ ID NO:1912, SEQ ID
15 NO:1913, SEQ ID NO:1914, SEQ ID NO:1916, SEQ ID NO:1917, SEQ ID NO:1918,
SEQ ID NO:1919, SEQ ID NO:1921, SEQ ID NO:1922, SEQ ID NO:1923, SEQ ID
NO:1924, SEQ ID NO:1926, SEQ ID NO:1927, SEQ ID NO:1928, SEQ ID NO:1929,
and/or SEQ ID NO:1931, a nucleic acid molecule of Table I, Table II, Table III or Table
IV and/or a nucleic acid molecule that is complementary to a nucleic acid molecule of
20 Table I, Table II, Table III or Table IV, wherein said oligonucleotide comprises at least
about 18 nucleotides.

Additional preferred flea HMT and/or HNC nucleic acid molecules of the present
invention include nucleic acid molecules comprising a nucleic acid sequence that is
preferably at least about 70%, more preferably at least about 75%, more preferably at
25 least about 80% more preferably at least about 85%, more preferably at least about 90%,
and even more preferably at least about 95% identical to a nucleic acid sequence selected
from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:4, SEQ ID
NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:13,
SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:21, SEQ
30 ID NO:22, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:28, SEQ ID
NO:30, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:36, SEQ ID

NO:37, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:43, SEQ ID
 NO:45, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:153, SEQ ID NO:155, SEQ ID
 NO:156, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:161, SEQ ID NO:162, SEQ ID
 NO:164, SEQ ID NO:165, SEQ ID NO:167, SEQ ID NO:168, SEQ ID NO:170, SEQ ID
 5 NO:1859, SEQ ID NO:1860, SEQ ID NO:1861, SEQ ID NO:1863, SEQ ID NO:1864,
 SEQ ID NO:1866, SEQ ID NO:1867, SEQ ID NO:1869, SEQ ID NO:1870, SEQ ID
 NO:1871, SEQ ID NO:1872, SEQ ID NO:1874, SEQ ID NO:1875, SEQ ID NO:1876,
 SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1880, SEQ ID NO:1881, SEQ ID
 NO:1882, SEQ ID NO:1884, SEQ ID NO:1885, SEQ ID NO:1886, SEQ ID NO:1887,
 10 SEQ ID NO:1889, SEQ ID NO:1890, SEQ ID NO:1891, SEQ ID NO:1892, SEQ ID
 NO:1893, SEQ ID NO:1894, SEQ ID NO:1895, SEQ ID NO:1896, SEQ ID NO:1898,
 SEQ ID NO:1899, SEQ ID NO:1900, SEQ ID NO:1901, SEQ ID NO:1903, SEQ ID
 NO:1904, SEQ ID NO:1905, SEQ ID NO:1906, SEQ ID NO:1907, SEQ ID NO:1908,
 SEQ ID NO:1909, SEQ ID NO:1910, SEQ ID NO:1911, SEQ ID NO:1912, SEQ ID
 15 NO:1913, SEQ ID NO:1914, SEQ ID NO:1916, SEQ ID NO:1917, SEQ ID NO:1918,
 SEQ ID NO:1919, SEQ ID NO:1921, SEQ ID NO:1922, SEQ ID NO:1923, SEQ ID
 NO:1924, SEQ ID NO:1926, SEQ ID NO:1927, SEQ ID NO:1928, SEQ ID NO:1929,
 and/or SEQ ID NO:1931, a nucleic acid molecule of Table I, Table II, Table III or Table
 IV and/or a nucleic acid molecule that is complementary to a nucleic acid molecule of
 20 Table I, Table II, Table III or Table IV. Also preferred are oligonucleotides of any of
 such nucleic acid molecules. Percent identity may be determined using the GCG™
 Wisconsin Package Version 9.0 sequence analysis software, using default parameters.

One embodiment of the present invention is a nucleic acid molecule comprising
 all or part of nucleic acid molecules nCfALN₂₀₅₇, nCfALN₁₁₅₂, nCfCBP₁₁₂₈, nCfCBP₈₁₆,
 25 nCfNKAB₁₇₁₄, nCfNKAB₉₇₈, nCfLGIC₂₂₄₀, nCfLGIC₁₇₀₇, nCfANON₁₄₂₉, nCfANON₁₁₉₄,
 nCfMALV₇₆₅, nCfMALV₇₆₂, nCfOSD₆₀₄, nCfOSD₄₀₅, nCfNMDA₁₂₂₇, nCfNMDA₇₃₈,
 nCfCLBP1A₆₃₃, nCfCLBP1A₄₄₁, nCfCLBP2A₆₃₁, nCfCLBP2A441, nCfLGIC₂₇₃₉,
 nCfLGIC₂₀₁₆, nCfNAH₂₀₈₀, nCfNAH₁₈₂₄, nCfCLIC₂₂₈₃, nCfCLIC₇₈₆, nCfPL2₁₂₉₁,
 nCfPL2₁₁₇₃, nCfPL3₄₀₆, nCfPL3₂₄₃, nCfPL4₉₇₄, nCfPL4₁₀₄₃, nCfPL4₁₀₆₂, nCfPL4₈₅₅,
 30 nCfSVP₁₈₇₅, nCfSVP₁₅₉₀, nCfVGCC₃₈₁, nCfVGCC₂₁₉₁, nCfVGCC₁₉₆₈, nCfVGCC₆₇₃,
 nCfVGCC₃₁₂₆, nCfVGCC₂₅₅₃, nCfAUP₁₁₈₁, nCfAUP₃₀₆, nCf7B2₂₁₆₁, nCf7B2₈₀₁, nCf7B2₇₄₁

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or allelic variants of these nucleic acid molecules. Another preferred nucleic acid molecule of the present invention includes at least a portion of nucleic acid sequence SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:153, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:161, SEQ ID NO:162, SEQ ID NO:164, SEQ ID NO:165, SEQ ID NO:167, SEQ ID NO:168, SEQ ID NO:170, SEQ ID NO:1859, SEQ ID NO:1860, SEQ ID NO:1861, SEQ ID NO:1863, SEQ ID NO:1864, SEQ ID NO:1866, SEQ ID NO:1867, SEQ ID NO:1869, SEQ ID NO:1870, SEQ ID NO:1871, SEQ ID NO:1872, SEQ ID NO:1874, SEQ ID NO:1875, SEQ ID NO:1876, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1880, SEQ ID NO:1881, SEQ ID NO:1882, SEQ ID NO:1884, SEQ ID NO:1885, SEQ ID NO:1886, SEQ ID NO:1887, SEQ ID NO:1889, SEQ ID NO:1890, SEQ ID NO:1891, SEQ ID NO:1892, SEQ ID NO:1893, SEQ ID NO:1894, SEQ ID NO:1895, SEQ ID NO:1896, SEQ ID NO:1898, SEQ ID NO:1899, SEQ ID NO:1900, SEQ ID NO:1901, SEQ ID NO:1903, SEQ ID NO:1904, SEQ ID NO:1905, SEQ ID NO:1906, SEQ ID NO:1907, SEQ ID NO:1908, SEQ ID NO:1909, SEQ ID NO:1910, SEQ ID NO:1911, SEQ ID NO:1912, SEQ ID NO:1913, SEQ ID NO:1914, SEQ ID NO:1916, SEQ ID NO:1917, SEQ ID NO:1918, SEQ ID NO:1919, SEQ ID NO:1921, SEQ ID NO:1922, SEQ ID NO:1923, SEQ ID NO:1924, SEQ ID NO:1926, SEQ ID NO:1927, SEQ ID NO:1928, SEQ ID NO:1929, and/or SEQ ID NO:1931, and/or a nucleic acid molecule of Table I, Table II, Table III or Table IV, as well as allelic variants of nucleic acid molecules having these nucleic acid sequences and homologues of nucleic acid molecules having these nucleic acid sequences; preferably such a homologue encodes or is complementary to a nucleic acid molecule that encodes at least one epitope that elicits an immune response against a protein having an amino acid sequence SEQ ID NO:2, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:20, SEQ ID NO:26, SEQ ID NO:32, SEQ ID NO:38, SEQ ID NO:44, SEQ ID NO:154,

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SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873, SEQ ID NO:1879, SEQ ID NO:1883, SEQ ID NO:1888, SEQ ID NO:1897, SEQ ID NO:1902, SEQ ID NO:1915, SEQ ID NO:1920, SEQ ID NO:1925, and/or SEQ ID NO:1930. Such nucleic acid molecules can include

- 5 nucleotides in addition to those included in the SEQ ID NOs, such as, but not limited to, a full-length gene, a full-length coding region, a nucleic acid molecule encoding a fusion protein, or a nucleic acid molecule encoding a multivalent protective compound.

In one embodiment, HMT and/or HNC nucleic acid molecule of the present invention encodes a protein that is at least about 70%, preferably at least about 75%,
 10 more preferably at least about 80%, even more preferably at least about 85%, even more preferably at least about 90%, even more preferably at least about 95%, even more preferably at least about 98%, and even more preferably at least about 100% identical to PCfALN₃₈₄, PCfCBP₂₇₂, PCfNKAB₃₂₆, PCfLGIC₅₆₉, PCfANON₃₉₈, PCfMALV₂₅₄, PCfOSD₁₃₅, PCfNMDA₂₄₆, PCfCLBP1A₁₄₇, PCfCLBP2A₁₄₇, PCfLGIC₆₇₂, PCfNAH₆₀₈,
 15 PCfCLIC₂₆₂, PCfPL2₃₉₁, PCfPL3₈₁, PCfPL4₂₈₅, PCfSVP₅₃₀, PCfVGCC₈₅₁, PCfAUP₁₀₂, PCf7B2₂₆₇, PCf7B2₂₄₇ and/or a protein encoded by a nucleic acid molecule having a sequence of Table I, Table II, Table III and/or Table IV.

In one embodiment, a HMT and/or HNC nucleic acid molecule of the present invention encodes a protein having an amino acid sequence that is at least about 70%,
 20 preferably at least about 75%, more preferably at least about 80%, even more preferably at least about 85%, even more preferably at least about 90%, even more preferably at least about 95%, even more preferably at least about 98%, and even more preferably at least about 100% identical to SEQ ID NO:2, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:20, SEQ ID NO:26, SEQ ID NO:32, SEQ ID NO:38, SEQ ID NO:44, SEQ ID NO:154, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873, SEQ ID NO:1879, SEQ ID NO:1883, SEQ ID NO:1888, SEQ ID NO:1897, SEQ ID NO:1902, SEQ ID NO:1915, SEQ ID NO:1920, SEQ ID NO:1925, and/or SEQ ID NO:1930 and/or a protein encoded by a nucleic acid molecule having a sequence of Table I, Table II, Table III and/or Table IV. The present
 25 invention also includes a HMT and/or HNC nucleic acid molecule encoding a protein having at least a portion of SEQ ID NO:2, SEQ ID NO:8, SEQ ID NO:14, SEQ ID
 30

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NO:20, SEQ ID NO:26, SEQ ID NO:32, SEQ ID NO:38, SEQ ID NO:44, SEQ ID NO:154, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873, SEQ ID NO:1879, SEQ ID NO:1883, SEQ ID NO:1888, SEQ ID NO:1897, SEQ ID NO:1902, SEQ ID NO:1915, SEQ ID NO:1920, 5 SEQ ID NO:1925, and/or SEQ ID NO:1930 and/or a protein encoded by a nucleic acid molecule having a sequence of Table I, Table II, Table III and/or Table IV, as well as allelic variants of a nucleic acid molecule encoding a protein having these sequences, including nucleic acid molecules that have been modified to accommodate codon usage properties of the cells in which such nucleic acid molecules are to be expressed.

10 In another embodiment, a preferred flea HMT and/or HNC nucleic acid molecule of the present invention comprises a nucleic acid molecule comprising at least about 15 nucleotides, more preferably at least about 18 nucleotides, more preferably at least about 20 nucleotides, more preferably at least about 25 nucleotides, more preferably at least about 30 nucleotides, more preferably at least about 40 nucleotides, more preferably at 15 least about 50 nucleotides, more preferably at least about 100 nucleotides, more preferably at least about 150 nucleotides, more preferably at least about 350 nucleotides, more preferably at least about 450 nucleotides, more preferably at least about 550 nucleotides, more preferably at least about 650 nucleotides, more preferably at least about 750 nucleotides, more preferably at least about 1000 nucleotides, more preferably 20 at least about 1500 nucleotides, more preferably at least about 1750 nucleotides more preferably at least about 2000 nucleotides, and even more preferably at least about 2250 nucleotides in length.

In another embodiment, a preferred flea HMT and/or HNC nucleic acid molecule encodes a protein comprising at least about 5 amino acids, preferably at least about 6 25 amino acids, more preferably at least about 10 amino acids, more preferably at least about 15 amino acids, more preferably at least about 20 amino acids, more preferably at least about 25 amino acids, more preferably at least about 30 amino acids, more preferably at least about 40 amino acids, more preferably at least about 50 amino acids, more preferably at least about 100 amino acids, more preferably at least about 150 amino 30 acids, more preferably at least about 200 amino acids, more preferably at least about 300

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amino acids, more preferably at least about 400 amino acids, more preferably at least about 500 amino acids, even more preferably at least about 560 amino acids in length.

In another embodiment, a preferred flea HMT and/or HNC nucleic acid molecule of the present invention comprises an apparently full-length HMT and/or HNC coding
5 region, i.e., the preferred nucleic acid molecule encodes an apparently full-length HMT and/or HNC protein, or a post-translationally modified protein thereof. In one embodiment, a preferred HMT and/or HNC nucleic acid molecule of the present invention encodes a mature protein.

In another embodiment, a preferred flea HMT and/or HNC nucleic acid molecule
10 of the present invention comprises a nucleic acid molecule comprising SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:31, SEQ ID
15 NO:33, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:153, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:161, SEQ ID NO:162, SEQ ID NO:164, SEQ ID NO:165, SEQ ID NO:167, SEQ ID NO:168, SEQ ID NO:170, SEQ ID NO:1859, SEQ ID NO:1860, SEQ
20 ID NO:1861, SEQ ID NO:1863, SEQ ID NO:1864, SEQ ID NO:1866, SEQ ID NO:1867, SEQ ID NO:1869, SEQ ID NO:1870, SEQ ID NO:1871, SEQ ID NO:1872, SEQ ID NO:1874, SEQ ID NO:1875, SEQ ID NO:1876, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1880, SEQ ID NO:1881, SEQ ID NO:1882, SEQ ID NO:1884, SEQ ID NO:1885, SEQ ID NO:1886, SEQ ID NO:1887, SEQ ID NO:1889, SEQ ID
25 NO:1890, SEQ ID NO:1891, SEQ ID NO:1892, SEQ ID NO:1893, SEQ ID NO:1894, SEQ ID NO:1895, SEQ ID NO:1896, SEQ ID NO:1898, SEQ ID NO:1899, SEQ ID NO:1900, SEQ ID NO:1901, SEQ ID NO:1903, SEQ ID NO:1904, SEQ ID NO:1905, SEQ ID NO:1906, SEQ ID NO:1907, SEQ ID NO:1908, SEQ ID NO:1909, SEQ ID NO:1910, SEQ ID NO:1911, SEQ ID NO:1912, SEQ ID NO:1913, SEQ ID NO:1914,
30 SEQ ID NO:1916, SEQ ID NO:1917, SEQ ID NO:1918, SEQ ID NO:1919, SEQ ID

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NO:1921, SEQ ID NO:1922, SEQ ID NO:1923, SEQ ID NO:1924, SEQ ID NO:1926, SEQ ID NO:1927, SEQ ID NO:1928, SEQ ID NO:1929, and/or SEQ ID NO:1931.

Knowing the nucleic acid sequences of certain flea HMT and/or HNC nucleic acid molecules of the present invention allows one skilled in the art to, for example, (a) make copies of those nucleic acid molecules, (b) obtain nucleic acid molecules including at least a portion of such nucleic acid molecules (e.g., nucleic acid molecules including full-length genes, full-length coding regions, regulatory control sequences, truncated coding regions), and (c) obtain other flea HMT and/or HNC nucleic acid molecules. Such nucleic acid molecules can be obtained in a variety of ways including screening appropriate expression libraries with antibodies of the present invention; traditional cloning techniques using oligonucleotide probes of the present invention to screen appropriate libraries; and PCR amplification of appropriate libraries or DNA using oligonucleotide primers of the present invention. Preferred libraries to screen or from which to amplify nucleic acid molecules include flea 1st instar larvae; 3rd instar larvae, wandering larvae, prepupal larvae, pupae and whole adult flea cDNA libraries as well as genomic DNA libraries. Similarly, preferred DNA sources to screen or from which to amplify nucleic acid molecules include flea prepupal cDNA, adult cDNA and genomic DNA. Techniques to clone and amplify genes are disclosed, for example, in Sambrook et al., *ibid*.

The present invention also includes nucleic acid molecules that are oligonucleotides capable of hybridizing, under stringent hybridization conditions, with complementary regions of other, preferably longer, nucleic acid molecules of the present invention such as those comprising *C. felis* HMT and/or HNC nucleic acid molecules or other flea HMT and/or HNC nucleic acid molecules. Oligonucleotides of the present invention can be RNA, DNA, or derivatives of either. The minimum size of such oligonucleotides is the size required for formation of a stable hybrid between an oligonucleotide and a complementary sequence on a nucleic acid molecule of the present invention. A preferred oligonucleotide of the present invention has a maximum size of preferably about 100 to 200 nucleotides. The present invention includes oligonucleotides that can be used as, for example, probes to identify nucleic acid molecules, primers to produce nucleic acid molecules, or therapeutic reagents to inhibit

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flea HMT and/or HNC protein production or activity (e.g., as antisense-, triplex formation-, ribozyme- and/or RNA drug-based reagents). The present invention also includes the use of such oligonucleotides to protect animals from disease using one or more of such technologies. Appropriate oligonucleotide-containing therapeutic
5 compositions can be administered to an animal using techniques known to those skilled in the art.

One embodiment of the present invention includes a recombinant vector, which includes at least one isolated nucleic acid molecule of the present invention, inserted into any vector capable of delivering the nucleic acid molecule into a host cell. Such a vector
10 contains heterologous nucleic acid sequences, that is nucleic acid sequences that are not naturally found adjacent to nucleic acid molecules of the present invention and that preferably are derived from a species other than the species from which the nucleic acid molecule(s) are derived. The vector can be either RNA or DNA, either prokaryotic or eukaryotic, and typically is a virus or a plasmid. Recombinant vectors can be used in the
15 cloning, sequencing, and/or otherwise manipulating of flea HMT and/or HNC nucleic acid molecules of the present invention.

One type of recombinant vector, referred to herein as a recombinant molecule, comprises a nucleic acid molecule of the present invention operatively linked to an expression vector. The phrase operatively linked refers to insertion of a nucleic acid
20 molecule into an expression vector in a manner such that the molecule is able to be expressed when transformed into a host cell. As used herein, an expression vector is a DNA or RNA vector that is capable of transforming a host cell and of effecting expression of a specified nucleic acid molecule. Preferably, the expression vector is also capable of replicating within the host cell. Expression vectors can be either prokaryotic
25 or eukaryotic, and are typically viruses or plasmids. Expression vectors of the present invention include any vectors that function (i.e., direct gene expression) in recombinant cells of the present invention, including in bacterial, fungal, parasite, insect, other animal, and plant cells. Preferred expression vectors of the present invention can direct gene expression in bacterial, yeast, insect and mammalian cells, and more preferably in
30 the cell types disclosed herein.

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In particular, expression vectors of the present invention contain regulatory sequences such as transcription control sequences, translation control sequences, origins of replication, and other regulatory sequences that are compatible with the recombinant cell and that control the expression of nucleic acid molecules of the present invention.

- 5 In particular, recombinant molecules of the present invention include transcription control sequences. Transcription control sequences are sequences that control the initiation, elongation, and termination of transcription. Particularly important transcription control sequences are those which control transcription initiation, such as promoter, enhancer, operator and repressor sequences. Suitable transcription control
- 10 sequences include any transcription control sequence that can function in at least one of the recombinant cells of the present invention. A variety of such transcription control sequences are known to those skilled in the art. Preferred transcription control sequences include those that function in bacterial, yeast, or insect and mammalian cells, such as, but not limited to, *tac*, *lac*, *trp*, *trc*, oxy-pro, omp/lpp, *rrnB*, bacteriophage
- 15 lambda (such as lambda p_L and lambda p_R and fusions that include such promoters), bacteriophage T7, T7*lac*, bacteriophage T3, bacteriophage SP6, bacteriophage SP01, metallothionein, alpha-mating factor, *Pichia* alcohol oxidase, alphavirus subgenomic promoter, antibiotic resistance gene, baculovirus, *Heliothis zea* insect virus, vaccinia virus, herpesvirus, raccoon poxvirus, other poxvirus, adenovirus, cytomegalovirus (such
- 20 as immediate early promoter), simian virus 40, retrovirus, actin, retroviral long terminal repeat, Rous sarcoma virus, heat shock, phosphate and nitrate transcription control sequences as well as other sequences capable of controlling gene expression in prokaryotic or eukaryotic cells. Additional suitable transcription control sequences include tissue-specific promoters and enhancers as well as lymphokine-inducible
- 25 promoters (e.g., promoters inducible by interferons or interleukins). Transcription control sequences of the present invention can also include naturally occurring transcription control sequences naturally associated with fleas, such as *C. felis* transcription control sequences.

- Suitable and preferred nucleic acid molecules to include in recombinant vectors
- 30 of the present invention are as disclosed herein. Preferred nucleic acid molecules to include in recombinant vectors, and particularly in recombinant molecules, include

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nucleic acid molecules having a sequence of Table I, Table II, Table III and/or Table IV. Particularly preferred nucleic acid molecules to include in recombinant vectors, and particularly in recombinant molecules, include nCfALN₂₀₅₇, nCfALN₁₁₅₂, nCfCBP₁₁₂₈, nCfCBP₈₁₆, nCfNKAB₁₇₁₄, nCfNKAB₉₇₈, nCfLGIC₂₂₄₀, nCfLGIC₁₇₀₇, nCfANON₁₄₂₉,
 5 nCfANON₁₁₉₄, nCfMALV₇₆₅, nCfMALV₇₆₂, nCfOSD₆₀₄, nCfOSD₄₀₅, nCfNMDA₁₂₂₇, nCfNMDA₇₃₈, nCfCLBP1A₆₃₃, nCfCLBP1A₄₄₁, nCfCLBP2A₆₃₁, nCfCLBP2A₄₄₁, nCfLGIC₂₇₃₉, nCfLGIC₂₀₁₆, nCfNAH₂₀₈₀, nCfNAH₁₈₂₄, nCfCLIC₂₂₈₃, nCfCLIC₇₈₆, nCfPL2₁₂₉₁, nCfPL2₁₁₇₃, nCfPL3₄₀₆, nCfPL3₂₄₃, nCfPL4₉₇₄, nCfPL4₁₀₄₃, nCfPL4₁₀₆₂, nCfPL4₈₅₅, nCfSVP₁₈₇₅, nCfSVP₁₅₉₀, nCfVGCC₃₈₁, nCfVGCC₂₁₉₁, nCfVGCC₁₉₆₈,
 10 nCfVGCC₆₇₃, nCfVGCC₃₁₂₆, nCfVGCC₂₅₅₃, nCfAUP₁₁₈₁, nCfAUP₃₀₆, nCf7B2₂₁₆₁, nCf7B2₈₀₁, nCf7B2₇₄₁.

Recombinant molecules of the present invention may also (a) contain secretory signals (i.e., signal segment nucleic acid sequences) to enable an expressed flea protein of the present invention to be secreted from the cell that produces the protein and/or (b)
 15 contain fusion sequences which lead to the expression of nucleic acid molecules of the present invention as fusion proteins. Examples of suitable signal segments include any signal segment capable of directing the secretion of a protein of the present invention. Preferred signal segments include, but are not limited to, tissue plasminogen activator (t-PA), interferon, interleukin, growth hormone, histocompatibility and viral envelope
 20 glycoprotein signal segments. Suitable fusion segments encoded by fusion segment nucleic acids are disclosed herein. In addition, a nucleic acid molecule of the present invention can be joined to a fusion segment that directs the encoded protein to the proteosome, such as a ubiquitin fusion segment. Eukaryotic recombinant molecules may also include intervening and/or untranslated sequences surrounding and/or within the
 25 nucleic acid sequences of nucleic acid molecules of the present invention.

Another embodiment of the present invention includes a recombinant cell comprising a host cell transformed with one or more recombinant molecules of the present invention. Transformation of a nucleic acid molecule into a cell can be accomplished by any method by which a nucleic acid molecule can be inserted into the
 30 cell. Transformation techniques include, but are not limited to, transfection, electroporation, microinjection, lipofection, adsorption, and protoplast fusion. A

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recombinant cell may remain unicellular or may grow into a tissue, organ or a multicellular organism. It is to be noted that a cell line refers to any recombinant cell of the present invention that is not a transgenic animal. Transformed nucleic acid molecules of the present invention can remain extrachromosomal or can integrate into one or more sites within a chromosome of the transformed (i.e., recombinant) cell in such a manner that their ability to be expressed is retained. Preferred nucleic acid molecules with which to transform a cell include *C. felis* HMT and HNC nucleic acid molecules disclosed herein. Preferred nucleic acid molecules with which to transform a cell include nucleic acid molecules having a sequence of Table I, Table II, Table III and/or Table IV. Particularly preferred nucleic acid molecules with which to transform a cell include nCfALN₂₀₅₇, nCfALN₁₁₅₂, nCfCBP₁₁₂₈, nCfCBP₈₁₆, nCfNKAB₁₇₁₄, nCfNKAB₉₇₈, nCfLGIC₂₂₄₀, nCfLGIC₁₇₀₇, nCfANON₁₄₂₉, nCfANON₁₁₉₄, nCfMALV₇₆₅, nCfMALV₇₆₂, nCfOSD₆₀₄, nCfOSD₄₀₅, nCfNMDA₁₂₂₇, nCfNMDA₇₃₈, nCfCLBP1A₆₃₃, nCfCLBP1A₄₄₁, nCfCLBP2A₆₃₁, nCfCLBP2A₄₄₁, nCfLGIC₂₇₃₉, nCfLGIC₂₀₁₆, nCfNAH₂₀₈₀, nCfNAH₁₈₂₄, nCfCLIC₂₂₈₃, nCfCLIC₇₈₆, nCfPL2₁₂₉₁, nCfPL2₁₁₇₃, nCfPL3₄₀₆, nCfPL3₂₄₃, nCfPL4₉₇₄, nCfPL4₁₀₄₃, nCfPL4₁₀₆₂, nCfPL4₈₅₅, nCfSVP₁₈₇₅, nCfSVP₁₅₉₀, nCfVGCC₃₈₁, nCfVGCC₂₁₉₁, nCfVGCC₁₉₆₈, nCfVGCC₆₇₃, nCfVGCC₃₁₂₆, nCfVGCC₂₅₅₃, nCfAUP₁₁₈₁, nCfAUP₃₀₆, nCf7B2₂₁₆₁, nCf7B2₈₀₁, or nCf7B2₇₄₁.

Suitable host cells to transform include any cell that can be transformed with a nucleic acid molecule of the present invention. Host cells can be either untransformed cells or cells that are already transformed with at least one nucleic acid molecule (e.g., nucleic acid molecules encoding one or more proteins of the present invention and/or other proteins useful in the production of multivalent vaccines). Host cells of the present invention either can be endogenously (i.e., naturally) capable of producing flea HMT and/or HNC proteins of the present invention or can be capable of producing such proteins after being transformed with at least one nucleic acid molecule of the present invention. Host cells of the present invention can be any cell capable of producing at least one protein of the present invention, and include bacterial, fungal (including yeast), parasite (including helminth, protozoa and ectoparasite), other insect, other animal and plant cells. Preferred host cells include bacterial, mycobacterial, yeast, insect and mammalian cells. More preferred host cells include *Salmonella*, *Escherichia*, *Bacillus*,

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- Caulobacter*, *Listeria*, *Saccharomyces*, *Pichia*, *Spodoptera*, *Mycobacteria*, *Trichoplusia*, BHK (baby hamster kidney) cells, MDCK cells (Madin-Darby canine kidney cell line), CRFK cells (Crandell feline kidney cell line), CV-1 cells (African monkey kidney cell line used, for example, to culture raccoon poxvirus), COS (e.g., COS-7) cells, and Vero cells. Particularly preferred host cells are *Escherichia coli*, including *E. coli* K-12 derivatives; *Salmonella typhi*; *Salmonella typhimurium*, including attenuated strains such as UK-1 _x3987 and SR-11 _x4072; *Caulobacter*; *Pichia*; *Spodoptera frugiperda*; *Trichoplusia ni*; BHK cells; MDCK cells; CRFK cells; CV-1 cells; COS cells; Vero cells; and non-tumorigenic mouse myoblast G8 cells (e.g., ATCC CRL 1246).
- 10 Additional appropriate mammalian cell hosts include other kidney cell lines, other fibroblast cell lines (e.g., human, murine or chicken embryo fibroblast cell lines), myeloma cell lines, Chinese hamster ovary cells, mouse NIH/3T3 cells, LMTK³¹ cells and/or HeLa cells. In one embodiment, the proteins may be expressed as heterologous proteins in myeloma cell lines employing immunoglobulin promoters.
- 15 A recombinant cell is preferably produced by transforming a host cell with one or more recombinant molecules, each comprising one or more nucleic acid molecules of the present invention operatively linked to an expression vector containing one or more transcription control sequences, examples of which are disclosed herein. The phrase operatively linked refers to insertion of a nucleic acid molecule into an expression vector
- 20 in a manner such that the molecule is able to be expressed when transformed into a host cell.
- A recombinant cell of the present invention includes any cell transformed with at least one of any nucleic acid molecule of the present invention. Suitable and preferred nucleic acid molecules as well as suitable and preferred recombinant molecules with
- 25 which to transfer cells are disclosed herein.
- Recombinant cells of the present invention can also be co-transformed with one or more recombinant molecules including flea HMT and/or HNC nucleic acid molecules encoding one or more proteins of the present invention and one or more other nucleic acid molecules encoding other protective compounds, as disclosed herein (e.g., to
- 30 produce multivalent vaccines).

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Recombinant DNA technologies can be used to improve expression of transformed nucleic acid molecules by manipulating, for example, the number of copies of the nucleic acid molecules within a host cell, the efficiency with which those nucleic acid molecules are transcribed, the efficiency with which the resultant transcripts are translated, and the efficiency of post-translational modifications. Recombinant techniques useful for increasing the expression of nucleic acid molecules of the present invention include, but are not limited to, operatively linking nucleic acid molecules to high-copy number plasmids, integration of the nucleic acid molecules into one or more host cell chromosomes, addition of vector stability sequences to plasmids, substitutions or modifications of transcription control signals (e.g., promoters, operators, enhancers), substitutions or modifications of translational control signals (e.g., ribosome binding sites, Shine-Dalgarno sequences), modification of nucleic acid molecules of the present invention to correspond to the codon usage of the host cell, deletion of sequences that destabilize transcripts, and use of control signals that temporally separate recombinant cell growth from recombinant enzyme production during fermentation. The activity of an expressed recombinant protein of the present invention may be improved by fragmenting, modifying, or derivatizing nucleic acid molecules encoding such a protein.

Isolated flea HMT and/or HNC proteins of the present invention can be produced in a variety of ways, including production and recovery of natural proteins, production and recovery of recombinant proteins, and chemical synthesis of the proteins. In one embodiment, an isolated protein of the present invention is produced by culturing a cell capable of expressing the protein under conditions effective to produce the protein, and recovering the protein. A preferred cell to culture is a recombinant cell of the present invention. Effective culture conditions include, but are not limited to, effective media, bioreactor, temperature, pH and oxygen conditions that permit protein production. An effective medium refers to any medium in which a cell is cultured to produce a flea HMT and/or HNC protein of the present invention. Such medium typically comprises an aqueous medium having assimilable carbon, nitrogen and phosphate sources, and appropriate salts, minerals, metals and other nutrients, such as vitamins. Cells of the present invention can be cultured in conventional fermentation bioreactors, shake flasks, test tubes, microtiter dishes, and petri plates. Culturing can be carried out at a

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temperature, pH and oxygen content appropriate for a recombinant cell. Such culturing conditions are within the expertise of one of ordinary skill in the art. Examples of suitable conditions are included in the Examples section.

Depending on the vector and host system used for production, resultant proteins
5 of the present invention may either remain within the recombinant cell; be secreted into the fermentation medium; be secreted into a space between two cellular membranes, such as the periplasmic space in *E. coli*; or be retained on the outer surface of a cell or viral membrane.

The phrase "recovering the protein", as well as similar phrases, refers to
10 collecting the whole fermentation medium containing the protein and need not imply additional steps of separation or purification. Proteins of the present invention can be purified using a variety of standard protein purification techniques, such as, but not limited to, affinity chromatography, ion exchange chromatography, filtration, electrophoresis, hydrophobic interaction chromatography, gel filtration chromatography,
15 reverse phase chromatography, concanavalin A chromatography, chromatofocusing and differential solubilization. Proteins of the present invention are preferably retrieved in "substantially pure" form. As used herein, "substantially pure" refers to a purity that allows for the effective use of the protein as a therapeutic composition or diagnostic. A therapeutic composition for animals, for example, should exhibit no substantial toxicity
20 and preferably should be capable of stimulating the production of antibodies in a treated animal.

The present invention also includes isolated (i.e., removed from their natural milieu) antibodies that selectively bind to a flea HMT and/or HNC protein of the present invention or a mimetope thereof (e.g., anti-*C. felis* HMT or HNC antibodies). As used
25 herein, the term "selectively binds to" an HMT and/or HNC protein refers to the ability of antibodies of the present invention to preferentially bind to specified proteins and mimetopes thereof of the present invention. Binding can be measured using a variety of methods standard in the art including enzyme immunoassays (e.g., ELISA), immunoblot assays, etc.; see, for example, Sambrook et al., *ibid.*, and Harlow, et al., 1988,
30 *Antibodies, a Laboratory Manual*, Cold Spring Harbor Labs Press; Harlow et al., *ibid.*
An anti-HMT or anti-HNC antibody of the present invention preferably selectively binds

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to a flea HMT or HNC protein respectively in such a way as to inhibit the function of that protein.

Isolated antibodies of the present invention can include antibodies in serum, or antibodies that have been purified to varying degrees. Antibodies of the present invention can be polyclonal or monoclonal, or can be functional equivalents such as antibody fragments and genetically-engineered antibodies, including single chain antibodies or chimeric antibodies that can bind to one or more epitopes.

A preferred method to produce antibodies of the present invention includes (a) administering to an animal an effective amount of a protein, peptide or mimotope thereof of the present invention to produce the antibodies and (b) recovering the antibodies. In another method, antibodies of the present invention are produced recombinantly using techniques as heretofore disclosed to produce HMT and/or HNC proteins of the present invention. Antibodies raised against defined proteins or mimetopes can be advantageous because such antibodies are not substantially contaminated with antibodies against other substances that might otherwise cause interference in a diagnostic assay or side effects if used in a therapeutic composition.

Antibodies of the present invention have a variety of potential uses that are within the scope of the present invention. For example, such antibodies can be used (a) as therapeutic compounds to passively immunize an animal in order to protect the animal from fleas susceptible to treatment by such antibodies and/or (b) as tools to screen expression libraries and/or to recover desired proteins of the present invention from a mixture of proteins and other contaminants. Furthermore, antibodies of the present invention can be used to target cytotoxic agents to fleas in order to directly kill such fleas. Targeting can be accomplished by conjugating (i.e., stably joining) such antibodies to the cytotoxic agents using techniques known to those skilled in the art. Suitable cytotoxic agents are known to those skilled in the art.

One embodiment of the present invention is a therapeutic composition that, when administered to an animal susceptible to flea infestation, is capable of protecting that animal from flea infestation. Therapeutic compositions of the present invention include at least one of the following protective molecules: an isolated flea HMT and/or HNC protein; a mimotope of an isolated flea HMT and/or HNC protein; an isolated flea HMT

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and/or HNC nucleic acid molecule; and/or a compound derived from said isolated flea HMT and/or HNC protein that inhibits HMT and/or HNC protein activity. A therapeutic composition of the present invention can further comprise a component selected from the group of an excipient, a carrier, and/or an adjuvant; these components are described further herein. As used herein, a protective molecule or protective compound refers to a compound that, when administered to an animal in an effective manner, is able to treat, ameliorate, and/or prevent flea infestation. Preferred fleas to target are heretofore disclosed. One example of a protective molecule is a vaccine, such as, but not limited to, a naked nucleic acid vaccine, a recombinant virus vaccine, a recombinant cell vaccine, and a recombinant protein vaccine. Another example of a protective molecule is a compound that inhibits HMT and/or HNC protein activity, such as an isolated antibody that selectively binds to a flea HMT and/or HNC protein, a substrate analog of a flea HMT and/or HNC protein, anti-sense-, triplex formation-, ribozyme-, and/or RNA drug-based compounds, or other inorganic or organic molecules that inhibit HMT and/or HNC protein activity. Inhibiting flea HMT and/or HNC protein activity can refer to the ability of a compound to reduce the activity of flea HMT and/or HNC proteins. Inhibiting flea HMT and/or HNC protein activity can also refer to the ability of a compound to reduce the amount of flea HMT and/or HNC protein in a flea.

Another embodiment of the present invention includes a method to reduce a flea infestation in an animal susceptible to flea infestation. Such a method includes the step of administering to the animal a therapeutic molecule comprising a protective compound selected from the group consisting of (a) an isolated flea HMT and/or HNC protein; (b) a mimotope of an isolated flea HMT and/or HNC protein; (c) an isolated flea HMT and/or HNC nucleic acid molecule; and (d) a compound derived from an isolated flea HMT and/or HNC protein that inhibits HMT and/or HNC protein activity.

Therapeutic compositions of the present invention can be administered to any animal susceptible to flea infestation, preferably to mammals, and more preferably to dogs, cats, humans, ferrets, horses, cattle, sheep, and other pets, economic food animals, work animals and/or zoo animals. Preferred animals to protect against flea infestation include dogs, cats, humans, and ferrets, with dogs and cats being particularly preferred.

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As used herein, the term derived, or the term derived from, refers to a peptide, antibody, mimetope, nucleic acid molecule, or other compound that was obtained from a flea HMT and/or HNC protein or nucleic acid molecule of the present invention. Methods to obtain derivatives from a HMT and/or HNC molecule of the present invention are known in the art, and as such include, but are not limited to molecular modeling of HMT and/or HNC proteins to determine active sites, i.e. sites that interact with other molecules, and predicting from these active sites smaller fragments and/or mimetopes that retain and/or mimic these active sites, thereby inhibiting HMT and/or HNC protein activity; screening of peptide or small chemical compound libraries against HMT and/or HNC proteins of the present invention; and screening of polyclonal or monoclonal antibodies to find antibodies that specifically bind HMT and/or HNC proteins of the present invention.

A HMT and/or HNC protein inhibitor of the present invention is identified by its ability to bind to, modify, or otherwise interact with, a flea HMT and/or HNC protein, thereby inhibiting the activity of HMT and/or HNC proteins. Suitable inhibitors of HMT and/or HNC protein activity are compounds that inhibit HMT and/or HNC protein activity in at least one of a variety of ways: (a) by binding to or otherwise interacting with or otherwise modifying HMT and/or HNC protein sites; (b) by binding to or otherwise interacting with or otherwise modifying the HMT and/or HNC protein active site; (c) by binding to the HMT and/or HNC protein and thus reducing the availability of the HMT and/or HNC protein in solution; and (d) by interacting with other regions of the HMT and/or HNC protein to inhibit HMT and/or HNC protein activity, for example, by allosteric interaction.

Flea HMT and/or HNC protein inhibitors can be used directly as compounds in compositions of the present invention to treat animals as long as such compounds are not harmful to host animals being treated. Preferred HMT and/or HNC protein inhibitors of the present invention include, but are not limited to, flea HMT and/or HNC protein substrate analogs, and other molecules that bind to a flea HMT and/or HNC proteins (e.g., to an allosteric site) in such a manner that the activity of the flea HMT and/or HNC protein is inhibited. A HMT and/or HNC protein substrate analog refers to a compound that interacts with (e.g., binds to, associates with, modifies) the active site of a HMT

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and/or HNC protein. A preferred HMT and/or HNC protein substrate analog inhibits HMT and/or HNC protein activity. HMT and/or HNC protein substrate analogs can be of any inorganic or organic composition. HMT and/or HNC protein substrate analogs can be, but need not be, structurally similar to a HMT and/or HNC protein natural substrate as long as they can interact with the active site of that HMT and/or HNC protein. HMT and/or HNC protein substrate analogs can be designed using computer-generated structures of HMT and/or HNC proteins of the present invention or computer structures of HMT and/or HNC protein's natural substrates. Preferred sites to model include one or more of the active sites of HMT and/or HNC protein. Substrate analogs can also be obtained by generating random samples of molecules, such as oligonucleotides, peptides, peptidomimetic compounds, or other inorganic or organic molecules, and screening such samples for their ability to interfere with interaction between HMT and/or HNC proteins and their substrates, e.g. by affinity chromatography techniques. A preferred HMT and/or HNC protein substrate analog is a HMT and/or HNC protein mimetic compound, i.e., a compound that is structurally and/or functionally similar to a natural substrate of a HMT and/or HNC protein of the present invention, particularly to the region of the substrate that interacts with the HMT and/or HNC protein active site, but that inhibits HMT and/or HNC protein activity upon interacting with the HMT and/or HNC protein active site.

20 The present invention also includes a therapeutic composition comprising at least one protective molecule of the present invention in combination with at least one additional compound protective against one or more infectious agents.

In one embodiment, a therapeutic composition of the present invention can be used to protect an animal from flea infestation by administering such composition to a flea in order to prevent infestation. Such administration to the flea and/or animal could be oral, or by application to the animal's body surface (e.g. topical spot-on, or spraying onto the animal), or by application to the environment (e.g., spraying). Examples of such compositions include, but are not limited to, transgenic vectors capable of producing at least one therapeutic composition of the present invention. In another embodiment a flea can ingest therapeutic compositions, or products thereof, present on

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the surface of or in the blood of a host animal that has been administered a therapeutic composition of the present invention.

In accordance with the present invention, a host animal (i.e., an animal that is or is capable of being infested with fleas) is treated by administering to the animal a therapeutic composition of the present invention in such a manner that the composition itself (e.g., a HMT and/or HNC protein inhibitor, a HMT and/or HNC protein synthesis suppressor (i.e., a compound that decreases the production or half-life of a HMT and/or HNC protein in fleas), a HMT and/or HNC protein mimetope, or a anti-HMT and/or HNC antibody) or a product generated by the animal in response to administration of the composition (e.g., antibodies produced in response to administration of a flea HMT and/or HNC protein or nucleic acid molecule, or conversion of an inactive inhibitor "prodrug" to an active HMT and/or HNC protein inhibitor) ultimately enters the flea. A host animal is preferably treated in such a way that the compound or product thereof is present on the body surface of the animal or enters the blood stream of the animal. Fleas are then exposed to the composition or product when they feed from the animal. For example, flea HMT and/or HNC protein inhibitors administered to an animal are administered in such a way that the inhibitors enter the blood stream of the animal, where they can be taken up by feeding fleas.

The present invention also includes the ability to reduce larval flea infestation in that when fleas feed from a host animal that has been administered a therapeutic composition of the present invention, at least a portion of compounds of the present invention, or products thereof, in the blood taken up by the fleas are excreted by the fleas in feces, which is subsequently ingested by flea larvae. In particular, it is of note that flea larvae obtain most, if not all, of their nutrition from flea feces.

In accordance with the present invention, reducing HMT and/or HNC protein activity in a flea can lead to a number of outcomes that reduce flea burden on treated animals and their surrounding environments. Such outcomes include, but are not limited to, (a) reducing the viability of fleas that feed from the treated animal, (b) reducing the fecundity of female fleas that feed from the treated animal, (c) reducing the reproductive capacity of male fleas that feed from the treated animal, (d) reducing the viability of eggs laid by female fleas that feed from the treated animal, (e) altering the blood feeding

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behavior of fleas that feed from the treated animal (e.g., fleas take up less volume per feeding or feed less frequently), (f) reducing the viability of flea larvae, for example due to the feeding of larvae from feces of fleas that feed from the treated animal, (g) altering the development of flea larvae (e.g., by decreasing feeding behavior, inhibiting growth, inhibiting (e.g., slowing or blocking) molting, and/or otherwise inhibiting maturation to adults), and/or (h) altering or decreasing the ability of fleas or flea larvae to digest a blood meal.

In order to protect an animal from flea infestation, a therapeutic composition of the present invention is administered to the animal in an effective manner such that the composition is capable of protecting that animal from flea infestation. Therapeutic compositions of the present invention can be administered to animals prior to infestation in order to prevent infestation (i.e., as a preventative vaccine) and/or can be administered to animals after infestation. For example, proteins, mimetopes thereof, and antibodies thereof can be used as immunotherapeutic agents.

Therapeutic compositions of the present invention can be formulated in an excipient that the animal to be treated can tolerate. Examples of such excipients include water, saline, Ringer's solution, dextrose solution, Hank's solution, and other aqueous physiologically balanced salt solutions. Nonaqueous vehicles, such as fixed oils, sesame oil, ethyl oleate, or triglycerides may also be used. Other useful formulations include suspensions containing viscosity enhancing agents, such as sodium carboxymethylcellulose, sorbitol, or dextran. Excipients can also contain minor amounts of additives, such as substances that enhance isotonicity and chemical stability. Examples of buffers include phosphate buffer, bicarbonate buffer and Tris buffer, while examples of preservatives include thimerosal, or o-cresol, formalin and benzyl alcohol. Standard formulations can either be liquid injectables or solids which can be taken up in a suitable liquid as a suspension or solution for injection. Thus, in a non-liquid formulation, the excipient can comprise dextrose, human serum albumin, preservatives, etc., to which sterile water or saline can be added prior to administration.

In one embodiment of the present invention, a therapeutic composition can include an adjuvant. Adjuvants are agents that are capable of enhancing the immune response of an animal to a specific antigen. Suitable adjuvants include, but are not

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limited to, cytokines, chemokines, and compounds that induce the production of cytokines and chemokines (e.g., granulocyte macrophage colony stimulating factor (GM-CSF), Flt-3 ligand, granulocyte colony stimulating factor (G-CSF), macrophage colony stimulating factor (M-CSF), colony stimulating factor (CSF), erythropoietin (EPO),
5 interleukin 2 (IL-2), interleukin-3 (IL-3), interleukin 4 (IL-4), interleukin 5 (IL-5), interleukin 6 (IL-6), interleukin 7 (IL-7), interleukin 8 (IL-8), interleukin 10 (IL-10), interleukin 12 (IL-12), interferon gamma, interferon gamma inducing factor I (IGIF), transforming growth factor beta, RANTES (regulated upon activation, normal T cell expressed and presumably secreted), macrophage inflammatory proteins (e.g., MIP-1
10 alpha and MIP-1 beta), and Leishmania elongation initiating factor (LEIF)); bacterial components (e.g., endotoxins, in particular superantigens, exotoxins and cell wall components); aluminum-based salts; calcium-based salts; silica; polynucleotides; toxoids; serum proteins, viral coat proteins; block copolymer adjuvants (e.g., Hunter's Titermax™ adjuvant (Vaxcel™, Inc. Norcross, GA), Ribi adjuvants (Ribi ImmunoChem
15 Research, Inc., Hamilton, MT); and saponins and their derivatives (e.g., Quil A (Superfos Biosector A/S, Denmark). Protein adjuvants of the present invention can be delivered in the form of the protein themselves or of nucleic acid molecules encoding such proteins using the methods described herein.

In one embodiment of the present invention, a therapeutic composition can
20 include a carrier. Carriers include compounds that increase the half-life of a therapeutic composition in the treated animal. Suitable carriers include, but are not limited to, polymeric controlled release vehicles, biodegradable implants, liposomes, bacteria, viruses, other cells, oils, esters, and glycols.

One embodiment of the present invention is a controlled release formulation that
25 is capable of slowly releasing a composition of the present invention into an animal. As used herein, a controlled release formulation comprises a composition of the present invention in a controlled release vehicle. Suitable controlled release vehicles include, but are not limited to, biocompatible polymers, other polymeric matrices, capsules, microcapsules, microparticles, bolus preparations, osmotic pumps, diffusion devices,
30 liposomes, lipospheres, and transdermal delivery systems. Other controlled release formulations of the present invention include liquids that, upon administration to an

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animal, form a solid or a gel *in situ*. Preferred controlled release formulations are biodegradable (i.e., bioerodible).

A preferred controlled release formulation of the present invention is capable of releasing a composition of the present invention into the blood of the treated animal at a constant rate sufficient to attain therapeutic dose levels of the composition to protect an animal from flea infestation. The therapeutic composition is preferably released over a period of time ranging from about 1 to about 12 months. A controlled release formulation of the present invention is capable of effecting a treatment preferably for at least about 1 month, more preferably for at least about 3 months, even more preferably for at least about 6 months, even more preferably for at least about 9 months, and even more preferably for at least about 12 months.

Acceptable protocols to administer therapeutic compositions in an effective manner include individual dose size, number of doses, frequency of dose administration, and mode of administration. Determination of such protocols can be accomplished by those skilled in the art. A suitable single dose is a dose that is capable of protecting an animal from disease when administered one or more times over a suitable time period. For example, a preferred single dose of a protein, mimetope or antibody therapeutic composition, including a recombinant protein vaccine, is from about 1 microgram (μg) to about 10 milligrams (mg) of the therapeutic composition per kilogram body weight of the animal. Booster vaccinations can be administered from about 2 weeks to several years after the original administration. Booster administrations preferably are administered when the immune response of the animal becomes insufficient to protect the animal from disease. A preferred administration schedule is one in which from about 10 μg to about 1 mg of the therapeutic composition per kg body weight of the animal is administered from about one to about two times over a time period of from about 2 weeks to about 12 months. Modes of administration can include, but are not limited to, subcutaneous, intradermal, intravenous, intranasal, oral, transdermal, intraocular, intranasal, conjunctival, and intramuscular routes. Methods of administration for other therapeutic compounds can be determined by one skilled in the art, and may include administration of a therapeutic composition one or more times, on a daily, weekly, monthly or yearly regimen; routes of administration can be determined by

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one skilled in the art, and may include any route. A preferred route of administration of an inhibitory compound when administering to fleas is a topical, or "spot-on" formulation administered to the body surface of the animal, so that a flea would encounter the inhibitory compound when attached to the animal; another preferred route of administration of an inhibitory compound is an oral formulation that, when fed to an animal, would enter the bloodstream of the animal, which would then be transferred to a flea while feeding from the animal.

A recombinant protein vaccine of the present invention comprises a recombinantly-produced flea HMT and/or HNC protein of the present invention that is administered to an animal according to a protocol that results in the animal producing a sufficient immune response to protect itself from a flea infestation. Such protocols can be determined by those skilled in the art.

According to one embodiment, a nucleic acid molecule of the present invention can be administered to an animal in a fashion to enable expression of that nucleic acid molecule into a protective protein or protective RNA (e.g., antisense RNA, ribozyme, triple helix forms or RNA drug) in the animal. Nucleic acid molecules can be delivered to an animal in a variety of methods including, but not limited to, (a) administering a naked (i.e., not packaged in a viral coat or cellular membrane) nucleic acid as a genetic vaccine (e.g., as naked DNA or RNA molecules, such as is taught, for example in Wolff et al., 1990, *Science* 247, 1465-1468) or (b) administering a nucleic acid molecule packaged as a recombinant virus vaccine or as a recombinant cell vaccine (i.e., the nucleic acid molecule is delivered by a viral or cellular vehicle).

A genetic (i.e., naked nucleic acid) vaccine of the present invention includes a nucleic acid molecule of the present invention and preferably includes a recombinant molecule of the present invention that preferably is replication, or otherwise amplification, competent. A genetic vaccine of the present invention can comprise one or more nucleic acid molecules of the present invention in the form of, for example, a dicistronic recombinant molecule. Preferred genetic vaccines include at least a portion of a viral genome, i.e., a viral vector. Preferred viral vectors include those based on alphaviruses, poxviruses, adenoviruses, herpesviruses, picornaviruses, and retroviruses, with those based on alphaviruses, such as sindbis or Semliki forest virus, species-

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specific herpesviruses and poxviruses being particularly preferred. Any suitable transcription control sequence can be used, including those disclosed as suitable for protein production. Particularly preferred transcription control sequences include cytomegalovirus immediate early (preferably in conjunction with Intron-A), Rous
5 sarcoma virus long terminal repeat, and tissue-specific transcription control sequences, as well as transcription control sequences endogenous to viral vectors if viral vectors are used. The incorporation of a "strong" polyadenylation signal is also preferred.

Genetic vaccines of the present invention can be administered in a variety of ways, with intramuscular, subcutaneous, intradermal, transdermal, conjunctival,
10 intraocular, intranasal and oral routes of administration being preferred. A preferred single dose of a genetic vaccine ranges from about 1 nanogram (ng) to about 600 µg, depending on the route of administration and/or method of delivery, as can be determined by those skilled in the art. Suitable delivery methods include, for example, by injection, as drops, aerosolized and/or topically. Genetic vaccines of the present
15 invention can be contained in an aqueous excipient (e.g., phosphate buffered saline) alone or in a carrier (e.g., lipid-based vehicles).

A recombinant virus vaccine of the present invention includes a recombinant molecule of the present invention that is packaged in a viral coat and that can be expressed in an animal after administration. Preferably, the recombinant molecule is
20 packaging- or replication-deficient and/or encodes an attenuated virus. A number of recombinant viruses can be used, including, but not limited to, those based on alphaviruses, poxviruses, adenoviruses, herpesviruses, picornaviruses, and retroviruses. Preferred recombinant virus vaccines are those based on alphaviruses (such as Sindbis virus), raccoon poxviruses, species-specific herpesviruses and species-specific
25 poxviruses. An example of methods to produce and use alphavirus recombinant virus vaccines are disclosed in U.S. Patent No. 5,766,602 to Xiong and Grieve.

When administered to an animal, a recombinant virus vaccine of the present invention infects cells within the immunized animal and directs the production of a protective protein or RNA nucleic acid molecule that is capable of protecting the animal
30 from flea infestation as disclosed herein. For example, a recombinant virus vaccine comprising a flea HMT and/or HNC nucleic acid molecule of the present invention is

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administered according to a protocol that results in the animal producing a sufficient immune response to protect itself from flea infestation. A preferred single dose of a recombinant virus vaccine of the present invention is from about 1×10^4 to about 1×10^8 virus plaque forming units (pfu) per kilogram body weight of the animal.

- 5 Administration protocols are similar to those described herein for protein-based vaccines, with subcutaneous, intramuscular, intranasal, intraocular, conjunctival, and oral administration routes being preferred.

A recombinant cell vaccine of the present invention includes recombinant cells of the present invention that express at least one protein of the present invention.

- 10 Preferred recombinant cells for this embodiment include *Salmonella*, *E. coli*, *Listeria*, *Mycobacterium*, *S. frugiperda*, yeast, (including *Saccharomyces cerevisiae* and *Pichia pastoris*), BHK, CV-1, myoblast G8, COS (e.g., COS-7), Vero, MDCK and CRFK recombinant cells. Recombinant cell vaccines of the present invention can be administered in a variety of ways but have the advantage that they can be administered orally, preferably at doses ranging from about 10^8 to about 10^{12} cells per kilogram body weight. Administration protocols are similar to those described herein for protein-based vaccines. Recombinant cell vaccines can comprise whole cells, cells stripped of cell walls or cell lysates.

- 20 The efficacy of a therapeutic composition of the present invention to protect an animal from flea infestation can be tested in a variety of ways including, but not limited to, detection of protective antibodies (using, for example, proteins or mimetopes of the present invention), detection of cellular immunity within the treated animal, or challenge of the treated animal with the fleas to determine whether the treated animal is resistant to infestation. Challenge studies can include direct administration of fleas to the treated animal. In one embodiment, therapeutic compositions can be tested in animal models such as mice. Such techniques are known to those skilled in the art.

- 25 One therapeutic composition of the present invention includes an inhibitor of flea HMT and/or HNC protein activity, i.e., a compound capable of substantially interfering with the function of a flea HMT and/or HNC protein susceptible to inhibition by an inhibitor of flea HMT and/or HNC protein activity. An inhibitor of HMT and/or HNC protein activity can be identified using flea HMT and/or HNC proteins of the present
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invention. An inhibitor of HMT and/or HNC protein function can be identified using flea HMT and/or HNC proteins of the present invention. A preferred inhibitor of HMT and/or HNC protein function is a compound capable of substantially interfering with the function of a flea HMT and/or HNC protein and which does not substantially interfere with host animal proteins. As used herein, a compound that does not substantially inhibit or interfere with host animal proteins is one that, when administered to a host animal, the host animal shows no significant adverse effects attributable to the compound and which, when administered to an animal in an effective manner, is capable of protecting that animal from flea infestation.

10 One embodiment of the present invention is a method to identify a compound capable of inhibiting HMT and/or HNC protein activity of a flea. Such a method includes the steps of (a) contacting (e.g., combining, mixing) an isolated flea HMT and/or HNC protein, preferably a *C. felis* HMT and/or HNC protein of the present invention, with a putative inhibitory compound under conditions in which, in the
15 absence of the compound, the protein has HMT and/or HNC protein activity, and (b) determining if the putative inhibitory compound inhibits the activity. HMT and/or HNC protein activity can be determined in a variety of ways known in the art, including but not limited to determining the ability of HMT and/or HNC protein to bind to or otherwise interact with a substrate. Such conditions under which a HMT and/or HNC
20 protein has HMT and/or HNC protein activity include conditions in which a HMT and/or HNC protein has a correct three-dimensionally folded structure under physiologic conditions, i.e. physiologic pH, physiologic ionic concentrations, and physiologic temperatures.

Putative inhibitory compounds to screen include antibodies (including fragments
25 and mimetopes thereof), putative substrate analogs, and other, preferably small, organic or inorganic molecules. Methods to determine HMT and/or HNC protein activity are known to those skilled in the art; see, for example, the Examples section of the present application. Methods to determine binding of a putative inhibitory compound to a HMT and/or HNC protein of the present invention are known to those of skill in the art and
30 include, for example, determining changes in molecular mass using surface plasmon resonance (e.g., determining light scatter by an inhibitor of a HMT and/or HNC protein,

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before and after contacting the inhibitor or protein with a HMT and/or HNC protein or inhibitor, respectively) or screening for compounds that inhibit interaction between a HMT and/or HNC protein and a substrate.

A preferred method to identify a compound capable of inhibiting HMT and/or HNC protein activity includes contacting an isolated flea HMT and/or HNC protein having an amino acid sequence selected from the group consisting of: (a) a protein comprising an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:20, SEQ ID NO:26, SEQ ID NO:32, SEQ ID NO:38, SEQ ID NO:44, SEQ ID NO:154, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873, SEQ ID NO:1879, SEQ ID NO:1883, SEQ ID NO:1888, SEQ ID NO:1897, SEQ ID NO:1902, SEQ ID NO:1915, SEQ ID NO:1920, SEQ ID NO:1925, and/or SEQ ID NO:1930, and/or a protein encoded by a nucleic acid molecule of Table I, Table II, Table III and/or Table IV; (b) a protein comprising an at least 25 consecutive amino acid portion identical in sequence to a consecutive amino acid portion of a sequence as set forth in (a), wherein the protein has HMT and/or HNC protein activity; (c) a protein comprising a fragment of a protein as set forth in (a), wherein the fragment has an activity selected from the group consisting of binding to a HMT and/or HNC molecule and hydrolyzing a HMT and/or HNC protein substrate; and (d) a protein encoded by an allelic variant of a nucleic acid molecule that encodes any protein of (a), (b), or (c), with a putative inhibitory compound under conditions in which, in the absence of the compound, the protein has HMT and/or HNC protein activity; and determining if the putative inhibitory compound inhibits the activity.

Another embodiment of the present invention is an assay kit to identify an inhibitor of a flea HMT and/or HNC protein of the present invention. This kit comprises an isolated flea HMT and/or HNC protein of the present invention, and a means for determining inhibition of an activity of flea HMT and/or HNC protein, where the means enables detection of inhibition. Detection of inhibition of flea HMT and/or HNC protein identifies a putative inhibitor to be an inhibitor of flea HMT and/or HNC protein. Means for determining inhibition of flea HMT and/or HNC protein include an assay system that detects binding of a putative inhibitor to a flea HMT and/or HNC molecule,

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and an assay system that detects interference by a putative inhibitor of the ability of flea HMT and/or HNC protein to hydrolyze a substrate. Means and methods are described herein and are known to those skilled in the art.

The following examples are provided for the purposes of illustration and are not intended to limit the scope of the present invention. The following examples include a number of recombinant DNA and protein chemistry techniques known to those skilled in the art; see, for example, Sambrook et al., *ibid*.

Example 1

This Example describes the isolation of RNA from the hindgut and Malpighian tubules (HMT) of *Ctenocephalides felis* and the use of isolated RNA to construct subtracted and unsubtracted cDNA libraries.

Approximately 10,000 hindguts and Malpighian tubules were dissected from equal numbers of cat blood fed and unfed adult *C. felis* with a male to female ratio of 1 to 4, and total RNA was extracted using a guanidine isothiocyanate lysis buffer and the standard procedure described by Sambrook et al. Poly-A enriched mRNA was purified from total RNA above using a mRNA Purification Kit, available from Pharmacia Biotech, Piscataway, NJ, following the manufacturer's protocol. The same procedures were used to extract total RNA and isolate poly-A enriched mRNA from the dissected *C. felis* bodies following removal of HMT, referred to hereinafter as "non-HMT mRNA".

Poly-A enriched mRNA was used to construct a cDNA library using subtractive hybridization and suppression PCR as follows. Subtractive hybridization and suppression PCR was conducted using a PCR-Select™ cDNA Subtraction Kit, available from Clontech Laboratories, Inc., Palo Alto, CA according to the manufacturer's instructions. Briefly, this kit uses subtractive hybridization and suppression PCR to specifically amplify cDNA sequences that are present in the tester cDNA and absent in the driver cDNA, thus enriching for tester-specific sequences. The efficiency of the subtraction process can be assessed by semi-quantitative PCR and by comparing the ethidium bromide staining patterns of the subtracted and unsubtracted samples on agarose gels as described in section V.D. of the manufacturer's protocol. For the semi-quantitative PCR, three genes with mRNAs known to be expressed outside of the HMT

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tissue were used to test for specific subtraction. These genes encoded putative actin, N-aminopeptidase, and serine protease proteins.

Subtractive hybridization and suppression PCR was conducted under the following conditions. Two micrograms (μg) of HMT mRNA was used as the template for synthesis of the tester material and 2 μg of non-HMT mRNA was used as template for synthesis of the driver material in this reaction. The number of cycles used in the selective amplification steps was optimized using the manufacturer's protocols. Optimization resulted in the use of 24 rather than the standard 27 cycles of primary PCR in combination with 15 cycles of secondary PCR rather than the standard 12 cycles.

10 The products from the suppressive PCR reaction were ligated into the pCR $\text{\textcircled{R}}$ 2.1 vector, available from Invitrogen, Carlsbad, CA, using an Original TA Cloning $\text{\textcircled{R}}$ Kit, available from Invitrogen. The ligation reaction was then used to transform INV α F' One Shot TM competent cells, available from Invitrogen, which were plated on Luria broth (LB) agar with 50 micrograms per milliliter ($\mu\text{g}/\text{ml}$) ampicillin, available from Sigma-
15 Aldrich Co., St. Louis, MO, and 50 $\mu\text{g}/\text{ml}$ 5-bromo-4-chloro-3-indoyl β -D-galactopyranoside (X-Gal), available from Fisher Biotech, Fair Lawn, NJ. Transformed colonies were amplified and the DNA isolated using the standard alkaline lysis procedure described by Sambrook et al., *ibid*.

Automated cycle sequencing of DNA samples was performed using an ABI
20 PRISM TM Model 377, available from Perkins Elmer, with XL upgrade DNA Sequencer, available from PE Applied Biosystems, Foster City, CA, after reactions were carried out using the PRISM TM Dye Terminator Cycle Sequencing Ready Reaction Kit or the PRISM TM dRhodamine Terminator Cycle Sequencing Ready Reaction Kit or the PRISM TM BigDye TM Terminator Cycle sequencing Ready Reaction Kit, available from PE Applied
25 Biosystems, following the manufacturer's protocol, hereinafter "standard sequencing methods". Sequence analysis was performed using the MacVector TM sequence analysis software, available from International Biotechnologies Inc., New Haven, CT, and the Wisconsin Package Version 9.0 sequence analysis software, available from Genetics Computer Group (GCG), Madison, WI, hereinafter referred to as GCG version 9.0,
30 using default parameters. Each sequence read was trimmed of vector sequence at either end and submitted for a search through the National Center for Biotechnology

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Information (NCBI), National Library of Medicine, National Institute of Health, Baltimore, MD, using the BLAST network. This database includes SwissProt + PIR + SPupdate + GenPept + GPCupdate + PDB databases. The search was conducted using the xBLAST function, which compares the translated sequences in all 6 reading frames to the protein sequences contained in the database. Clones with significant homology to sequences in the GenBank database were grouped according to proposed function and are listed in Table II. Clones with no significant homology to sequences in the GenBank database were searched manually for open reading frames and are listed in Table IV.

An unsubtracted HMT cDNA library was constructed as follows. Approximately 10,000 HMT tissues were dissected from equal numbers of unfed and cat blood-fed adult *C. felis* with a male to female ratio of 1:4. Total RNA was extracted using a guanidine isothiocyanate lysis buffer and procedures described in Sambrook et al., followed by isolation using a mRNA purification kit, available from Pharmacia, according to the manufacturer's protocols. The library was constructed with 5 µg of isolated mRNA using a ZAP-cDNA® cDNA synthesis kit, and packaged using a ZAP-cDNA® Gigapack® gold cloning kit, both available from Stratagene, La Jolla, CA. The resultant HMT library was amplified to a titer of about 5×10^9 plaque forming units per milliliter (pfu/ml). Single clone excisions were performed using the Ex-Assist™ helper phage, available from Stratagene, and used to create double stranded plasmid template for sequencing using the manufacturer's protocols with the following exceptions. Following incubation of the SOLR cells with the cleared phage lysate, the mixture was used to inoculate LB broth, and the mix was incubated overnight and then subjected to mini-prep plasmid preparation and sequencing as described for the subtracted HMT library above.

25 Example 2

This Example describes the isolation of RNA from the head and nerve cord (HNC) of *Ctenocephalides felis* and the use of isolated RNA to construct subtracted and unsubtracted cDNA libraries.

Approximately 4,000 heads and attached nerve cords, including the terminal abdominal ganglia were dissected from equal numbers of cat blood-fed and unfed adult *C. felis* with a male to female ratio of 1 to 4, and total RNA was extracted using a

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guanidine isothiocyanate lysis buffer and the standard procedure described by Sambrook et al. Approximately 618 µg of total RNA was recovered. Poly-A enriched mRNA was purified from total RNA above using a mRNA Purification Kit, available from Pharmacia, following the manufacturer's protocol. Approximately 13 µg of mRNA was isolated. The same procedures were used to extract total RNA and isolate poly-A enriched mRNA from the dissected *C. felis* bodies following removal of HNC tissues, referred to hereinafter as "non-HNC mRNA".

Suppression subtractive PCR was conducted as described in Example 1 using a PCR-Select™ cDNA Subtraction kit, available from Clontech, under the following conditions. Two micrograms (µg) of HNC mRNA was used as the template for synthesis of the tester material and 2 µg of non-HMT mRNA was used as template for synthesis of the driver material in this reaction. The number of cycles used in the selective amplification steps was optimized using the manufacturer's protocols. Optimization resulted in the use of 24 rather than the standard 27 cycles of primary PCR in combination with either 12 or 15 cycles of secondary PCR.

cDNA pools from various PCR cycling combinations were ligated into the TA vector using a TA cloning kit, available from Invitrogen. Aliquots of ligation reaction were transformed into Ultramax DH5α™ bacteria, available from Gibco-BRL, Gaithersburg, MD. Portions of the transformation mixes were used to inoculate LB broth cultures containing 100 µg/ml of ampicillin. The overnight cultures were plated to generate discrete colonies which were used individually for overnight cultures for plasmid preps. Transformed colonies were amplified and the DNA isolated using the standard alkaline lysis procedure described by Sambrook et al., *ibid*.

Automated cycle sequencing of DNA samples was performed using the standard sequencing methods described in Example 1. Sequence analysis was performed using the MacVector™ sequence analysis software, available from International Biotechnologies Inc., New Haven, CT, and the Wisconsin Package Version 9.0 sequence analysis software, available from Genetics Computer Group (GCG), Madison, WI, hereinafter referred to as GCG version 9.0, using default parameters. Each sequence read was trimmed of vector sequence at either end and submitted for a xBLAST search as described in Example 1. Clones with significant homology to sequences in the

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GenBank database were grouped according to proposed function and are listed in Table I. Clones with no significant homology to sequences in the GenBank database were searched manually for open reading frames and are listed in Table III.

An unsubtracted cDNA library was constructed as follows. Approximately 6400 head and nerve cords were dissected from *C. felis* and poly-A RNA was isolated as described above. About seven µg of HNC poly-A RNA was used to construct a cDNA library using Stratagene's λZAP-cDNA Synthesis Kit and protocol. The resultant HNC library was amplified to a titer of about 5×10^9 plaque forming units per milliliter (pfu/ml). Single clone excisions were performed using the Ex-Assist helper phage, available from Stratagene, and used to create double stranded plasmid template for sequencing using the manufacturer's protocols with the following exceptions. Following incubation of the SOLR cells with the cleared phage lysate, the mixture was used to inoculate LB broth, and the mix was incubated overnight and then subjected to mini-prep plasmid preparation and sequencing as described for the subtracted library above.

Example 3

This example describes the production of a *C. felis* cDNA pool by Rapid Amplification of cDNA Ends (RACE cDNA pool).

Total RNA was extracted from adult fed and unfed fleas as follows. Approximately 1000 adult fed fleas and 1000 adult unfed fleas were frozen on dry ice and separately ground into powder using a mortar and pestle and total RNA was extracted from each powder as follows. Ten ml of solution D (4 M guanidine isothiocyanate, 25 mM Sodium Citrate pH 7.0, 1.5% Sarcosyl, 0.5 M 2-mercaptoethanol) were added to the powder and the suspension was mixed by shaking. One ml of 2M sodium acetate, pH 4.0 and 3 ml of pH 4.7 phenol/chloroform/isoamyl alcohol (125:24:1), available from Sigma, were added and the suspension was mixed on a vortex shaker then incubated on ice for 15 minutes. Following incubation, the mixture was centrifuged at 10,000 X g for 20 minutes and the supernatant was removed and extracted twice with pH 4.7 phenol/chloroform/isoamyl alcohol. Next, an equal volume of isopropanol was added to the supernatant and incubated at -20°C for 2 hours followed by centrifugation at 10,000 X g for 20 minutes. Following centrifugation, the

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supernatant was removed and discarded and the pellet was washed in 70% ethanol and allowed to dry at room temperature. The pellet was resuspended in 10 mM Tris 1 mM EDTA pH 8.0. Spectrophotometer analysis indicated that the yield of total RNA from unfed fleas was 1140 µg and the yield from fed fleas was 1500 µg.

5 Six-hundred µg from each of the fed and unfed adult flea total RNA extractions were combined and mRNA was then extracted using a mRNA Purification Kit, available from Amersham Pharmacia Biotech, Piscataway, NJ, using the manufacture's protocol. Approximately 15-25 µg of mRNA were isolated based on spectrophotometer analysis and ethidium bromide staining. One µg of purified mRNA was used as template to
10 construct a RACE cDNA pool using a Marathon cDNA Amplification Kit, available from Clontech Laboratories, Inc., Palo Alto, CA, according to the manufacture's instructions.

Example 4

15 This example describes the cloning, sequencing, recombinant protein expression and purification of a *C. felis* allantoinase nucleic acid molecule of the present invention. This example also describes the expression of allantoinase mRNA in a variety of flea tissues.

20 A TA clone from the HMT EST library described in Example 1 was sequenced using standard sequencing methods and shown to have significant homology to allantoinase genes. This clone was digested with *EcoRI* to excise an insert 682 nucleotides in length, referred to as flea nucleic acid molecule nCfALN₆₈₂. The insert was isolated by gel purification using a Gel Purification kit, available from Qiagen, Chatsworth, CA. Approximately 50 nanograms (ng) of purified nCfALN₆₈₂ was used to construct a ³²P α-dATP labeled DNA probe using a Megaprime DNA labeling kit,
25 available from Amersham, Arlington Heights, IL, using the manufacturer's protocols.

30 The ³²P α-dATP labeled probe was used in a standard plaque lift hybridization procedure to isolate a clone from the HMT lambda-ZAP unsubtracted cDNA library described in Example 1. The following hybridization conditions were used, hereinafter referred to as "standard hybridization conditions". Filters were hybridized with about 1 X 10⁶ counts per minute (cpm) per ml of the probe in 5X SSPE, (see Sambrook et al., *ibid.*), 1.2% sodium dodecyl sulfate (SDS), 0.1 mg/ml salmon sperm DNA and 5X

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Denhardt's reagent, (see Sambrook et al., *ibid.*), at 55°C for about 14 hours. The filters were washed as follows: (a) 10 minutes with 5X SSPE and 1% SDS, (b) 10 minutes with 2X SSPE and 1% SDS, (c) 10 minutes with 1X SSPE and 0.5% SDS, and (d) 10 minutes with 0.5X SSPE and 1% SDS. All washes were conducted at 55°C. Plaques that

5 hybridized strongly to the probe were isolated and subjected to *in vivo* excision. *In vivo* excision was performed using the Stratagene Ex-Assist™ helper phage system and protocols, to convert a positive plaque to pBluescript™ plasmid DNA. Sequencing was conducted using standard sequencing methods following preparation of DNA with a Qiagen Qiaprep™ spin mini prep kit using the manufacturer's instructions and

10 restriction enzyme digestion with about 1 µl of 20 U/µl each of *Eco*RI and *Xho*I, available from New England Biolabs, Beverly, MA. A clone was isolated from a primary plaque, containing a nucleic acid molecule of about 2057 base pairs, referred to herein as nCfALN₂₀₅₇, having a nucleotide sequence denoted herein as SEQ ID NO:1. The complement of SEQ ID NO:1 is represented herein as SEQ ID NO:3. Sequencing

15 of nCfALN₆₈₂ indicates that nCfALN₆₈₂ shared 100% identity with nucleotides 855 through 1536 of SEQ ID NO:1.

Translation of SEQ ID NO:1 suggests that nucleic acid molecule nCfALN₂₀₅₇ encodes a full-length allantoinase protein of 384 amino acids, referred to herein as PCfALN₃₈₄, having an amino acid sequence represented by SEQ ID NO:2, assuming the

20 initiation codon spans from nucleotide 152 through nucleotide 154 of SEQ ID NO:1 and the termination codon spans from nucleotide 1304 through nucleotide 1306 of SEQ ID NO:1. The coding region encoding PCfALN₃₈₄, is represented by nucleic acid molecule nCfALN₁₁₅₂, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:4 and a complementary strand with nucleic acid sequence represented by SEQ ID

25 NO:6. The amino acid sequence of PCfALN₃₈₄, also represented as SEQ ID NO:5, predicts that PCfALN₃₈₄ has an estimated molecular weight of about 42.2 kilodaltons (kDa) and an estimated isoelectric point (pI) of about 6.

Comparison of amino acid sequence SEQ ID NO:2 with amino acid sequences reported in GenBank indicates that SEQ ID NO:2 showed the most homology, i.e., about

30 48.6% identity, with a *Rana catesbeiana* (bullfrog) allantoinase protein, GenBank Accession No. 458126. Comparison of SEQ ID NO:4 with nucleic acid sequences

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reported in GenBank indicates that SEQ ID NO:4 showed the most homology, i.e., about 51% identity, with a *Rana catesbeiana* nucleic acid molecule, GenBank Accession number U03471. Percent identity calculations were performed using GCG version 9.0 using default parameters.

5 The coding region of nCfALN₂₀₅₇, i.e. SEQ ID NO:4, was PCR amplified from the pBluescript™ clone described above as the template, using sense primer ALN-FE, having nucleotide sequence 5' GCG GAT CCT ATG CTG AAT TGC AAG AAC CTT G 3', having a *Bam*HI site indicated in bold, designated herein as SEQ ID NO:37, and anti-sense primer ALN-RE, having nucleotide sequence 5' CAG **GTA CCC TCT TTT**
10 AGA AGC ACC GGT CCC 3', having a *Kpn*I site indicated in bold, designated herein as SEQ ID NO:38. PCR reactions were performed using the following amplification cycles: (a) one cycle at 95°C for thirty seconds; (b) thirty cycles at 95°C for twenty seconds, 50°C for twenty seconds, and 72°C for two minutes; and (c) one cycle at 72°C for five minutes, hereinafter referred to as "standard thermocycling conditions", in
15 reactions containing 2.5 mM MgCl₂, 0.2 mM dNTPs, 1 μM of each primer, 0.5 μl of 5U/μl *Taq* polymerase, 1 μl of 1 μg/μl template, and 3 μl of 10X *Taq* buffer, hereinafter referred to as "standard PCR reaction conditions". The PCR product was digested with *Bam*HI and *Kpn*I and ligated into the vector pTrcHisB, available from Invitrogen, that had been digested with *Bam*HI and *Kpn*I and treated with alkaline phosphatase. The
20 resulting recombinant molecule, referred to herein as pTrc-nCfALN₁₁₅₂, was transformed into *E. coli* strain BL21, available from Novagen Inc., Madison, WI, to form recombinant cell *E. coli*:pTrc-nCfALN₁₁₅₂.

The recombinant cell was grown under standard conditions and then incubated in the presence of 0.5 μM isopropylthio-β-galactoside (IPTG) to induce expression of
25 recombinant protein, predicted to be approximately 42.2 kDa. Expression was confirmed using Coomassie-blue-stained Tris-glycine gel and by Western blot using a T7 tag antibody, available from Novagen, which showed expression of an about 55-kDa protein. The protein product was purified by liquid chromatography using a HiTrap™ chelating column charged with NiCl₂, available from Pharmacia, and was shown to
30 contain the His tag of the vector when subjected to automated protein sequencing by Edman degradation.

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A Northern Blot analysis was conducted as follows to determine whether allantoinase is expressed exclusively in HMT tissues. HMT tissues were dissected from 1000 adult cat blood-fed *C. felis* having a male to female ratio of 1:4. Total RNA was separately extracted from HMT tissues and the HMT-less carcasses that resulted from these dissections as follows. The tissues were frozen at -80°C, ground into a powder with a mortar and pestle, and the powders were equally divided into four 2-ml eppendorf tubes each containing 1 ml of lysis buffer. The lysis buffer contained 4 M guanidinium thiocyanate, 25 mM sodium citrate, pH 7.0, 3% sarcosyl, 0.5M 2-mercaptoethanol, 0.1% antifoam, and 1 mM aurintricarboxylic acid, all available from Sigma Chemical Corporation, St. Louis, MO. After mixing, the tubes were spun at 14,000 rpm for 2 minutes and the supernatants were transferred to separate 2 ml eppendorf tubes containing 250 µl of phenol, available from Aldrich, Milwaukee, WI. After mixing, the tubes were spun at 14,000 rpm for 5 minutes and the supernatants were transferred to new 2-ml tubes. This process was repeated 3 times until no proteinaceous matter was visible at the phenol/lysis buffer interface, then 250 µl of chloroform was added to each tube and the contents mixed and spun at 14,000 rpm for 5 minutes followed by transferring the supernatant to a new tube. A volume of isopropanol equal to the volume of the supernatant was added to each tube and the tubes placed on ice for 5 minutes. The tubes were then spun at 14,000 rpm at room temperature for 15 minutes, the supernatants were removed and discarded and the remaining RNA pellets were washed with 70% ethanol and dried. The RNA pellets were resuspended in 100 µl of TE (10 mM Tris, 1 mM ethylenediaminetetraacetic acid (EDTA)). The quantity of RNA in each tube was then determined using a spectrophotometer.

Approximately 10 µg of each RNA was added to separate tubes containing 18.75 µl of loading buffer, which consists of 50% formamide, 16% formaldehyde, 17% water, 7% glycerol, 1 X MOPS buffer (a 1:20 dilution of 0.4 M 93-[N-morpholino]propanesulfonic acid (MOPS), 0.1 M sodium acetate, and 20 mM EDTA), 10 µl ethidium bromide, and 10 µl bromophenol blue dye, all available from Sigma. The tubes were heated to 95°C for 2 minutes then placed on ice. The RNA samples were separated by gel electrophoresis on a 1.5% agarose gel with 3.2% formaldehyde and 1 X MOPS buffer; the gel was then soaked in water for 30 minutes prior to transfer to

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remove excess formaldehyde. The gel was then transferred using standard techniques, described by Sambrook *et al.*, *ibid*, with 10 X SSPE as the transfer buffer onto Nytran® nylon membrane, available from Schleicher and Schuell Inc., Keene, NH. The membrane was UV cross-linked using the Stratalinker®, available from Stratagene, then

5 prehybridized at 42°C in 50% formamide, 5X SSPE, 1.2% SDS, 5X Denhardt's reagent, 2.5 mM EDTA, and 100 µg/ml salmon sperm DNA. A probe comprising the allantoinase EST nucleic acid molecule, nCfALN₆₈₂ was labeled with α-³²P-ATP using a DNA labeling kit, available from Amersham and added to the buffer at a concentration of approximately 1 x 10⁶ cpm/ml, and allowed to hybridize for 18 hours at 42°C. The

10 blot was then washed as follows: 10 minutes at 42°C in 4X SSPE and 1% SDS; 10 minutes at 42°C in 2X SSPE and 1% SDS; 10 minutes at 42°C with 0.5X SSPE and 0.5X SDS; and 10 minutes at 42°C with 0.25X SSPE and 0.25% SDS. The blot was then exposed to film for 1 hour, and the film was developed using standard procedures. Analysis of the developed film revealed that allantoinase mRNA was present in HMT

15 tissues but was not present in non-HMT tissues.

Northern Blot analysis was also conducted to determine whether allantoinase mRNA is expressed only in certain stages of the flea life cycle and whether allantoinase mRNA expression is influenced by feeding. Total RNA was extracted as described above from 1000 fleas at each of the following flea life stages; eggs, first instar larvae,

20 third instar larvae, wandering larvae and pupae and from 1000 adult fleas under the following feeding conditions; unfed, fed on cat blood for 15 minutes, fed on cat blood for 2 hours, fed on cat blood for 8 hours, and fed on cat blood for 24 hours.

Each RNA sample was separated by gel electrophoresis, transferred to nylon membrane and hybridized with α-³²P-ATP labeled nCfALN₆₈₂ probe as described above.

25 Analysis of the developed film revealed that allantoinase mRNA was expressed in all adult fleas tested regardless of feeding conditions and was expressed by all life stages except for eggs and pupae, the two life stages which do not feed or excrete urine.

Example 5

This example describes the cloning, sequencing, recombinant protein expression

30 and purification of a *C. felis* chitin-binding protein nucleic acid molecule. This example also describes the expression of chitin-binding protein mRNA in a variety of flea tissues.

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A TA clone from the HMT EST library described in Example 1 was sequenced using standard sequencing methods and shown to have homology to a chitinase-like gene from *Bombyx mori* (silkworm). This clone was digested with *EcoRI* to excise an insert about 429 nucleotides in length, referred to as chitin-binding protein (CBP)

5 nucleic acid molecule nCfCBP₄₂₉. The insert was isolated by gel purification using a Gel Purification kit, available from Qiagen. Approximately 50 ng of purified nCfCBP₄₂₉ was used to construct a ³²P α-dATP labeled DNA probe using a Megaprime DNA labeling kit, available from Amersham, using the manufacturer's protocols.

The ³²P α-dATP labeled probe was used in a plaque lift hybridization procedure
10 to isolate a clone from the HMT lambda-ZAP unsubtracted cDNA library described in Example 1, using standard hybridization conditions described in Example 4. Plaques that hybridized strongly to the probe were isolated and subjected to *in vivo* excision. *In vivo* excision was performed using the Stratagene Ex-Assist™ helper phage system and protocols, to convert a positive plaque to pBluescript™ plasmid DNA, and sequencing
15 was conducted following preparation of DNA with a Qiagen Qiaprep™ spin mini prep kit using the manufacturer's instructions and restriction enzyme digestion with about 1 μl of 20 U/μl each of *EcoRI* and *XhoI*, available from New England Biolabs. A clone was isolated from a primary plaque, containing a nucleic acid molecule of about 1128 base pairs, referred to herein as nCfCBP₁₁₂₈, having a nucleotide sequence denoted
20 herein as SEQ ID NO:7. The complement of SEQ ID NO:7 is represented herein as SEQ ID NO:9. Sequencing of nCfCBP₄₂₉ indicated that nCfCBP₄₂₉ shares 100% identity with nucleotides 148 through 576 of SEQ ID NO:7.

Translation of SEQ ID NO:7 suggests that nucleic acid molecule nCfCBP₁₁₂₈ encodes a full-length chitin-binding protein of 272 amino acids, referred to herein as
25 PCfCBP₂₇₂, having an amino acid sequence represented by SEQ ID NO:8, assuming the initiation codon spans from nucleotide 6 through nucleotide 8 of SEQ ID NO:7 and the termination codon spans from nucleotide 822 through nucleotide 824 of SEQ ID NO:7. The coding region encoding PCfCBP₂₇₂ is represented by nucleic acid molecule nCfCBP₈₁₆, having a coding strand with the nucleic acid sequence represented by SEQ
30 ID NO:10 and a complementary strand with nucleic acid sequence represented by SEQ ID NO:12. The amino acid sequence of PCfCBP₂₇₂, also represented as SEQ ID NO:11,

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predicts that PCfCBP₂₇₂ has an estimated molecular weight of about 30.6 kDa and an estimated pI of about 7.3.

Comparison of amino acid sequence SEQ ID NO:8 with amino acid sequences reported in GenBank indicates that SEQ ID NO:8 showed the most homology, i.e., about 26% identity with a *Lucilia cuprina* peritrophin-44 protein, GenBank Accession No. 407976. Comparison of SEQ ID NO:10 with nucleic acid sequences reported in GenBank indicates that SEQ ID NO:10 showed the most homology, i.e., about 40% with a *Lucilia cuprina* peritrophin-44 nucleic acid molecule, GenBank Accession number L25106. Percent identity calculations were performed using GCG version 9.0 using default parameters.

A nucleic acid molecule comprising nucleotides 59 through 827 of SEQ ID NO:7, encoding a predicted mature flea chitin-binding protein, was PCR amplified from the pBluescript™ clone described above as the template, using sense primer CBP-FE, having nucleotide sequence 5' CGG GAT CCT GCT GAC AGG AAT TCG CCC AC 3', having a *Bam*HI site indicated in bold, designated herein as SEQ ID NO:39, and anti-sense primer CBP-RE, having nucleotide sequence 5' CAT GGT ACC CCT GGT TTA AGC CTT ACT TAG C 3', having a *Kpn*I site indicated in bold, designated herein as SEQ ID NO:38. PCR reactions were performed using standard PCR reaction and thermocycling conditions described in Example 4. The PCR product was digested with *Bam*HI and *Kpn*I and ligated into the vector pTrcHisB, available from Invitrogen, that had been digested with *Bam*HI and *Kpn*I and treated with alkaline phosphatase. The resulting recombinant molecule, referred to herein as pTrc-nCfCBP₇₆₉, was transformed into *E. coli* strain BL21, available from Novagen, to form recombinant cell *E. coli*:pTrc-nCfCBP₇₆₉. The recombinant cell was grown under standard conditions and then incubated in the presence of 0.5 μM IPTG to induce expression of recombinant protein, predicted to be a protein of approximately 32 kDa. Expression of protein was confirmed using Coomassie-blue-stained Tris-glycine gel and by Western blot using a T7 tag antibody which showed expression of an about 32-kDa protein. The protein product was purified by liquid chromatography using a HiTrap™ chelating column charged with NiCl₂, available from Pharmacia, and was shown to contain the His tag of the vector when subjected to automated protein sequencing by Edman degradation.

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Northern Blot analysis was conducted as described in Example 4 to determine whether CBP mRNA is expressed in only HMT tissue, only in certain stages of the flea life cycle and whether CBP mRNA expression is influenced by feeding. Total RNA was extracted from flea tissues, life stages and feeding conditions as described in Example 4.

- 5 Each RNA sample was separated by gel electrophoresis, transferred to a nylon membrane and hybridized with α -³²P-ATP labeled nCfCBP₄₂₉ under the Northern Blotting conditions described in Example 4. Analysis of the developed film revealed that CBP mRNA was expressed in HMT tissues but not in non-HMT tissues. CBP mRNA was also detected in all adult fleas tested regardless of feeding conditions but
- 10 was not detected in any of the non-adult life stages.

Example 6

This example describes the cloning and sequencing of a *C. felis* sodium/potassium ATPase, beta subunit nucleic acid molecule.

- A TA clone from the HMT EST library described in Example 1 was sequenced
- 15 using standard sequencing methods and shown to have homology to the nervous system antigen 1 gene from *Drosophila melanogaster*. This clone was digested with *Eco*RI to excise an insert about 439 nucleotides in length, referred to as flea NKAB nucleic acid molecule nCfNKAB₄₃₉. The insert was isolated by gel purification using a Gel Purification kit, available from Qiagen. Approximately 50 ng of purified nCfNKAB₄₃₉
- 20 was used to construct a ³²P α -dATP labeled DNA probe using a Megaprime DNA labeling kit, available from Amersham, using the manufacturer's protocols.

- The ³²P α -dATP labeled probe was used in a plaque lift hybridization procedure to isolate a clone from the HMT lambda-ZAP unsubtracted cDNA library described in Example 1, using standard hybridization conditions described in Example 4. Plaques
- 25 that hybridized strongly to the probe were isolated and subjected to *in vivo* excision. *In vivo* excision was performed using the Stratagene Ex-Assist™ helper phage system and protocols, to convert a positive plaque to pBluescript™ plasmid DNA, and sequencing was conducted following preparation of DNA with a Qiagen Qiaprep™ spin mini prep kit using the manufacturer's instructions and restriction enzyme digestion with about 1
- 30 μ l of 20 U/ μ l each of *Eco*RI and *Xho*I, available from New England Biolabs. A clone was isolated from a secondary plaque, containing a nucleic acid molecule of about 1714

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base pairs, referred to herein as nCfNKAB₁₇₁₄, having a nucleotide sequence denoted herein as SEQ ID NO:13. The complement of SEQ ID NO:13 is represented herein as SEQ ID NO:15. Sequencing of nCfNKAB₄₃₉ indicates that nCfNKAB₄₃₉ shared 100% identity with nucleotides 907 through 1345 of SEQ ID NO:13.

- 5 Translation of SEQ ID NO:13 suggests that nucleic acid molecule nCfNKAB₁₇₁₄ encodes a full-length NKAB protein of 326 amino acids, referred to herein as PCfNKAB₃₂₆, having an amino acid sequence represented by SEQ ID NO:14, assuming the initiation codon spans from nucleotide 294 through nucleotide 296 of SEQ ID NO:13 and the termination codon spans from nucleotide 1272 through nucleotide 1274 of SEQ
- 10 ID NO:13. The coding region encoding PCfNKAB₃₂₆ is represented by nucleic acid molecule nCfNKAB₉₇₈, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:16 and a complementary strand with nucleic acid sequence represented by SEQ ID NO:18. The amino acid sequence of PCfNKAB₃₂₆, also represented by SEQ ID NO:17 predicts that PCfNKAB₃₂₆ has an estimated molecular
- 15 weight of about 37.7 kDa and an estimated pI of about 5.

- Comparison of amino acid sequence SEQ ID NO:14 with amino acid sequences reported in GenBank indicates that SEQ ID NO:14 showed the most homology, i.e., about 46% identity, with a *Drosophila melanogaster* nervous system antigen 2 protein, GenBank Accession No. 881344. Comparison of SEQ ID NO:16 with nucleic acid
- 20 sequences reported in GenBank indicates that SEQ ID NO:16 showed the most homology, i.e., about 52% identity, with a *Drosophila melanogaster* nervous system antigen 2 nucleic acid molecule, GenBank Accession number U22440. Percent identity calculations were performed using GCG version 9.0 using default parameters.

Example 7

- 25 This example describes the cloning and sequencing of a *C. felis* ligand-gated ion channel nucleic acid molecule. This example also describes the expression of ligand-gated ion channel mRNA in a variety of flea tissues.

- A TA clone from the HMT EST library described in Example 1 was sequenced using standard sequencing methods and shown to have homology to a human ligand-
- 30 gated chloride channel nucleic acid molecule. The clone was digested with *EcoRI* to excise an insert about 376 nucleotides in length, referred to as flea LGIC nucleic acid

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molecule nCfLGIC₃₇₆. The insert was isolated by gel purification using a Gel Purification kit, available from Qiagen. Approximately 50 ng of purified nCfLGIC₃₇₆ was used to construct a ³²P α-dATP labeled DNA probe using a Megaprime DNA labeling kit available from Amersham, using the manufacturer's protocols.

5 The ³²P α-dATP labeled probe was used in a plaque lift hybridization procedure to isolate a clone from the HMT lambda-ZAP unsubtracted cDNA library described in Example 1, using standard hybridization conditions described in Example 4. Plaques that hybridized strongly to the probe were isolated and subjected to *in vivo* excision. *In vivo* excision was performed using the Stratagene Ex-Assist™ helper phage system and
10 protocols, to convert a positive plaque to pBluescript™ plasmid DNA and sequencing was conducted following preparation of DNA with a Qiagen Qiaprep™ spin mini prep kit using the manufacturer's instructions and restriction enzyme digestion with about 1 μl of 20 U/μl each of *Eco*RI and *Xho*I, available from New England Biolabs. A clone was isolated from a secondary plaque, containing a nucleic acid molecule of about 2240
15 base pairs, referred to herein as n nCfLGIC₂₂₄₀, having a nucleotide sequence denoted herein as SEQ ID NO:19. The complement of SEQ ID NO:19 is represented herein as SEQ ID NO:21. Sequencing of nCfLGIC₃₇₆ indicates that nCfLGIC₃₇₆ shared 100% identity with nucleotides 763 through 1138 of SEQ ID NO:19.

Translation of SEQ ID NO:19 suggests that nucleic acid molecule nCfLGIC₂₂₄₀
20 encodes a partial-length LGIC protein of 569 amino acids, referred to herein as PCfLGIC₅₆₉, having an amino acid sequence represented by SEQ ID NO:20, assuming the initiation codon spans from nucleotide 1 through nucleotide 3 of SEQ ID NO:19 and the termination codon spans from nucleotide 1708 through nucleotide 1710 of SEQ ID NO:19. The coding region encoding PCfLGIC₅₆₉, is represented by nucleic acid
25 molecule nCfLGIC₁₇₀₇, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:22 and a complementary strand with nucleic acid sequence represented by SEQ ID NO:24. The amino acid sequence of PCfLGIC₅₆₉, also represented as SEQ ID NO:23, predicts that PCfLGIC₅₆₉ has an estimated molecular weight of about 64 kDa and an estimated pI of about 6.6.

30 Comparison of amino acid sequence SEQ ID NO:20 with amino acid sequences reported in GenBank indicates that SEQ ID NO:20 showed the most homology, i.e.,

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about 23% identity, with a *Rattus norvegicus* glycine receptor alpha-3 chain precursor protein, GenBank Accession No. 121580. Comparison of SEQ ID NO:22 with nucleic acid sequences reported in GenBank indicates that SEQ ID NO:22 showed the most homology, i.e., about 38% identity, with a human glycine receptor alpha-3 subunit nucleic acid molecule, GenBank Accession number AF017715. Percent identity calculations were performed using GCG version 9.0 using default parameters.

Northern Blot analysis was conducted as described in Example 4 to determine whether LGIC mRNA is expressed in only HMT tissue. Total RNA was extracted from HMT tissues and non-HMT tissues as described in Example 4. Each RNA sample was separated by gel electrophoresis, transferred to nylon membranes and hybridized with α -³²P-ATP labeled nCfLGIC₃₇₆ under the Northern Blotting conditions described in Example 4. Analysis of the developed film revealed that LGIC mRNA was expressed in HMT tissues but not in non-HMT tissues.

Additional nucleic acid sequence corresponding to the coding regions at the 5' end of the LGIC cDNA described above was isolated by PCR using the RACE cDNA pool prepared as described in Example 3 as the template. A first PCR reaction was conducted using reverse primer LGIC-R4, which is complementary to nucleotides 200-223 of SEQ ID NO:19, having a nucleic acid sequence 5' GCG ATA CTG GTG GTA CTG GTG AAG 3', denoted herein as SEQ ID NO:1932 was used with the forward linker primer Adapter Primer 1, having a nucleic acid sequence 5' CCA TCC TAA TAC GAC TCA CTA TAG GGC 3', denoted herein as SEQ ID NO:1933 using standard PCR reaction conditions and the following thermocycling conditions: (1) 94°C for 30 seconds, (2) 5 cycles of 94°C for 10 seconds then 72°C for 4 minutes, (3) 5 cycles of 94°C for 10 seconds then 70°C for 4 minutes, and (4) 25 cycles of 94°C for 10 seconds then 68°C for 4 minutes. The reaction product was separated on a 1.5% agarose gel and stained by ethidium bromide, but no clear bands were seen. The first PCR reaction product was diluted 1:50 in water and used as template for a second PCR reaction using reverse primer LGIC-R5, which is complementary to nucleotides 88-110 of SEQ ID NO:19, having a nucleic acid sequence 5' GAG GTG GTT GTC TTC AGT GGT TG 3', denoted herein as SEQ ID NO:1934 and forward Adapter Primer 2, having a nucleic acid sequence 5' ACT CAC TAT AGG GCT CGA GCG GC 3', denoted herein as SEQ

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ID NO:1935 under the same reaction conditions described for the first PCR reaction. The reaction product was separated by electrophoresis on a 1.5% agarose gel and stained with ethidium bromide revealing an approximately 700 bp band. This band was cut from the gel and purified using the QIAquick Gel Extraction Kit, then ligated into the

5 pCR II TA Cloning vector, available from Invitrogen Corporation, Carlsbad, CA, using the manufacture's protocol. This clone, referred to herein as nCfLGIC₆₁₃ and having a coding sequence denoted SEQ ID NO:1859, and a complementary strand denoted herein as SEQ ID NO:1860 was sequenced using an ABI PRISM 377 automatic DNA

10 Sequencer, available from Perkin Elmer, Branchburg, NJ. Sequence analysis revealed that nucleotides 503-613 of nCfLGIC₆₁₃ had 100% identity with nucleotides 1-110 of SEQ ID NO:19. The two sequences were aligned to form a 2739 nucleotide contiguous sequence, referred to herein as nCfLGIC₂₇₃₉, having a coding strand denoted herein as SEQ ID NO:1861 and a complementary strand denoted herein as SEQ ID NO:1863. Translation of SEQ ID NO:1861 suggests that nucleic acid molecule nCfLGIC₂₇₃₉

15 encodes a full-length LGIC protein of 672 amino acids, referred to herein as PCfLGIC₆₇₂, having an amino acid sequence represented by SEQ ID NO:1862, assuming the initiation codon spans from nucleotide 191 through nucleotide 193 of SEQ ID NO:1861 and the termination codon spans from nucleotide 2207 through nucleotide 2209 of SEQ ID NO:1861. The coding region encoding PCfLGIC₆₇₂, is represented by

20 nucleic acid molecule nCfLGIC₂₀₁₆, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:1864 and a complementary strand with nucleic acid sequence represented by SEQ ID NO:1866. The amino acid sequence of PCfLGIC₆₇₂, i.e. SEQ ID NO:1862, predicts that PCfLGIC₆₇₂ has an estimated molecular weight of about 75.5 kDa and an estimated pI of about 5.89.

25 Comparison of amino acid sequence SEQ ID NO:1862 with amino acid sequences reported in GenBank indicates that SEQ ID NO:1862 showed the most homology, i.e., 31.4% identity with glycine receptor Alpha 3 chain precursor cDNA from *Rattus norvegicus* (Accession # P24524). Comparison of SEQ ID NO:1864 with nucleic acid sequences reported in GenBank indicates that SEQ ID NO:1864 showed the

30 most homology, i.e., about 43.1% identity with the *Homo sapiens* glycine receptor,

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alpha3 cDNA (Accession # NP006520). Percent identity calculations were performed using GCG version 9.0 using default parameters.

A LGIC nucleic acid molecule for recombinant expression of the predicted extracellular domain was produced as follows. In order to ligate the region encoding the predicted extracellular domain of the LGIC cDNA into the InsectSelect™ expression vector pIB/V5-His, two separate but overlapping DNA fragments were generated to be used as the template in the PCR overlap extension. To generate a 3' DNA fragment, a first PCR reaction was conducted using forward primer LGIC-ECD-D2F, which corresponds to nucleotides 2-25 of SEQ ID NO:19, having a nucleic acid sequence 5' CAA TTT TAA ACG CAT CCA CGA CCG 3', denoted herein as SEQ ID NO:1936, and reverse primer LGIC-ECD-RE, which is complementary to nucleotides 937-961 of SEQ ID NO:19, having a nucleic acid sequence 5' CCG **CTC GAG** CGA CCC ATT TCA CGA CTT ATT TGA ATC G 3', denoted herein as SEQ ID NO:1937 and having a *XhoI* site indicated in bold, to amplify nucleotides 2-963 from SEQ ID NO:19 which was used as template under standard PCR reaction conditions and the following thermocycling conditions: (1) 94°C for 30 seconds, (2) 25 cycles of 94°C for 10 seconds, 55°C for 10 seconds, and 72°C for 3 minutes. The products of this reaction were separated on a 1.5% agarose gel, and a band corresponding to an approximately 960 nucleotide molecule was cut from the gel and purified using the QIAquick Gel Extraction Kit as described above. To generate a 5' cDNA fragment, a second PCR reaction was conducted using reverse primer LGIC-R5 (SEQ ID NO:1934) and forward primer LGIC-ECD-FE, which corresponds to nucleotides 188-215 of SEQ ID NO:1859, having a nucleic acid sequence 5' GGA **ATT CTA** AAA TGC ACA ACA AAA TCC TGG TCC TGG 3', denoted herein as SEQ ID NO:1938, and having an *EcoRI* site indicated in bold, using SEQ ID NO:1859 as the template under the thermocycling conditions described for generating the 3' fragment. The products of this reaction were separated on a 1.5% agarose gel, and a band corresponding to an approximately 425 nucleotide molecule was cut from the gel and purified using the QIAquick Gel Extraction Kit as described above.

For the PCR overlap extension reaction, the 5' and 3' cDNA fragments described above were used as the template in a PCR reaction with forward primer LGIC-ECD-FE and reverse primer LGIC-ECD-RE under the thermocycling conditions described for

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generating the 5' and 3' fragments. The products of this reaction were separated on a 1.5% agarose gel, and a band corresponding to an approximately 1300 nucleotide molecule, as visualized by agarose gel electrophoresis and ethidium bromide staining, referred to herein as nCfLGIC₁₃₀₀, was cut from the gel and purified using the QIAquick
5 Gel Extraction Kit as described above.

The product of the PCR overlap extension reaction was the digested with *EcoRI* and *XhoI* restriction endonucleases, available from New England BioLabs, Inc., Beverly, MA, for 18 hours at 37°. The digestion product was purified using the QIAquick Nucleotide Removal Kit, available from Qiagen, and ligated into the vector pIB/V5-His
10 which had also been digested with *EcoRI* and *XhoI* and treated with shrimp alkaline phosphatase, available from New England BioLabs, Inc. for 30 minutes at 37°. Following standard transformation procedures, a bacterial clone containing the plasmid pIB/V5-His-nCfLGIC₁₃₀₀ was isolated. DNA sequence analysis of pIB/V5-His-nCfLGIC₁₃₀₀ confirmed that nucleotides 188-1464 of SEQ ID NO:1861 had been
15 successfully ligated into the pIB/V5-His expression vector in frame with the C-terminal V5 epitope encoded by the vector.

Example 8

This example describes the cloning and sequencing of a *C. felis* ANON/23DA nucleic acid molecule. This example also describes the expression of ANON/23DA
20 mRNA in a variety of flea tissues.

A TA clone from the HMT EST library described in Example 1 was sequenced using standard sequencing methods and shown to have homology to an ANON/23DA gene from *Drosophila melanogaster*. This clone was digested with *EcoRI* to excise an insert about 177 nucleotides in length, referred to as flea ANON nucleic acid molecule
25 nCfANON₁₇₇. The insert was isolated by gel purification using a Gel Purification kit, available from Qiagen. Approximately 50 ng of purified nCfANON₁₇₇ was used to construct a ³²P α-dATP labeled DNA probe using a Megaprime DNA labeling kit, available from Amersham, using the manufacturer's protocols.

The ³²P α-dATP labeled probe was used in a plaque lift hybridization procedure
30 to isolate a clone from the HMT lambda-ZAP unsubtracted cDNA library described in Example 1, using standard hybridization conditions described in Example 4. Plaques

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that hybridized strongly to the probe were isolated and subjected to *in vivo* excision. *In vivo* excision was performed using the Stratagene Ex-Assist™ helper phage system and protocols, to convert a positive plaque to pBluescript™ plasmid DNA and sequencing of DNA was conducted following preparation with a Qiagen Qiaprep™ spin mini prep kit

5 using the manufacturer's instructions and restriction enzyme digestion with about 1 µl of 20 U/µl each of *Eco*RI and *Xho*I, available from New England Biolabs. A clone was isolated from a secondary plaque, containing a nucleic acid molecule of about 1429 base pairs, referred to herein as nCfANON₁₄₂₉, having a nucleotide sequence denoted herein as SEQ ID NO:25. The complement of SEQ ID NO:25 is represented herein as SEQ ID

10 NO:27. Sequencing of nCfANON₁₇₇ indicates that nCfANON₁₇₇ shared 100% identity with nucleotides 279 through 455 of SEQ ID NO:25.

Translation of SEQ ID NO:25 suggests that nucleic acid molecule nCfANON₁₄₂₉ encodes a full-length ANON protein of 398 amino acids, referred to herein as PCfANON₃₉₈, having an amino acid sequence represented by SEQ ID NO:26, assuming

15 the initiation codon spans from nucleotide 18 through nucleotide 20 of SEQ ID NO:25 and the termination codon spans from nucleotide 1212 through nucleotide 1214 of SEQ ID NO:25. The coding region encoding PCfANON₃₉₈ is represented by nucleic acid molecule nCfANON₁₁₉₄, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:28 and a complementary strand with nucleic acid sequence

20 represented by SEQ ID NO:30. The amino acid sequence of PCfANON₃₉₈, also represented as SEQ ID NO:29, predicts that PCfANON₃₉₈ has an estimated molecular weight of about 45 kDa and an estimated pI of about 8.8.

Comparison of amino acid sequence SEQ ID NO:26 with amino acid sequences reported in GenBank indicates that SEQ ID NO:26 showed the most homology, i.e.,

25 about 65% identity, with a *Drosophila melanogaster* ANON/23DA protein, GenBank Accession No. 924937. Comparison of SEQ ID NO:28 with nucleic acid sequences reported in GenBank indicates that SEQ ID NO:28 showed the most homology, i.e., about 60% identity, with a *Drosophila melanogaster* ANON/23DA nucleic acid molecule, GenBank Accession number U29170. Percent identity calculations were

30 performed using GCG version 9.0 using default parameters.

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Northern Blot analysis was conducted as described in Example 4 to determine whether ANON mRNA is expressed in only HMT tissue, only in certain stages of the flea life cycle and whether ANON mRNA expression is influenced by feeding. Total RNA was extracted from flea tissues, life stages and feeding conditions as described in Example 4. Each RNA sample was separated by gel electrophoresis, transferred to nylon membranes and hybridized with α -³²P-ATP labeled nCfANON₁₇₇ under the Northern Blotting conditions described in Example 4. Analysis of the developed film revealed that ANON mRNA was expressed in non-HMT tissues but not in HMT tissues. ANON mRNA was also detected in all adult fleas tested regardless of feeding conditions and in the wandering larvae and pupal life stages.

Example 9

This example describes the cloning and sequencing of a *C. felis* malvolio nucleic acid molecule.

A TA clone from the HMT EST library described in Example 1 was digested with *Eco*RI to excise an insert about 432 nucleotides in length, referred to as nCfMALV₄₃₂. The insert was isolated by gel purification using a Gel Purification kit, available from Qiagen and sequenced using standard sequencing methods and shown to have homology to a malvolio gene from *Drosophila melanogaster*, hereinafter referred to as a flea MALV nucleic acid molecule.

Sequence information from nCfMALV₄₃₂ was used to design PCR primers to amplify a *C. felis* MALV nucleic acid molecule from the HMT unsubtracted library described in Example 1 using a nested PCR as follows. Sense primer MALV R1, having the nucleotide sequence 5' CCA TTA TTA ACC TGG TCG ACC AC 3', designated SEQ ID NO:41 and corresponding to nucleotides 365-387 of nCfMALV₄₃₂ and reverse primer M13 Reverse, having the nucleotide sequence 5' GGA AAC AGT ATG ACC ATG 3', designated SEQ ID NO:42 were used in a first PCR reaction using HMT unsubtracted library as the template using standard PCR reaction and thermocycling conditions, with the exception that 2 μ l of template was used. The reaction product from the first PCR reaction was diluted 1:50 and used as the template in a second PCR reaction as follows. Reverse primer malvolio R2, having a nucleotide sequence 5' CGC TAT AGT CGG TAG GGT CGC 3', designated SEQ ID NO:43 and corresponding to

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nucleotides 239-259 of nCfMALV₄₃₂ and forward primer T3, having a nucleotide sequence 5' AAT TAA CCC TCA CTA AAG GG 3' were used in a second PCR reaction under standard PCR reaction and thermocycling conditions.

The second PCR reaction resulted in an approximately 1000 bp PCR product which was separated by electrophoresis on a 1.5% agarose gel, excised and purified using a Gel Purification Kit, available from Qiagen. The purified PCR product was ligated into the pCRII™, Original TA cloning vector, available from Invitrogen. The ligation reaction was then used to transform INVαF' One Shot™ competent cells, available from Invitrogen, which were plated on LB agar with 50 micrograms per milliliter (μg/ml) ampicillin, available from Sigma-Aldrich Co., and 50 μg/ml X-Gal, available from Fisher Biotech. A clone was isolated from the ligation mix containing a nucleic acid molecule of about 765 base pairs, referred to herein as nCfMALV₇₆₅, having a nucleotide sequence denoted herein as SEQ ID NO:31. The complement of SEQ ID NO:31 is represented herein as SEQ ID NO:33.

Translation of SEQ ID NO:31 suggests that nucleic acid molecule nCfMALV₇₆₅ encodes a partial-length MALV protein of 254 amino acids, referred to herein as PCfMALV₂₅₄, having an amino acid sequence represented by SEQ ID NO:32, assuming the initiation codon spans from nucleotide 2 through nucleotide 4 of SEQ ID NO:31 and the last codon spans from nucleotide 761 through nucleotide 763 of SEQ ID NO:31. The coding region encoding PCfMALV₂₅₄, is represented by nucleic acid molecule nCfMALV₇₆₂, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:34 and a complementary strand with nucleic acid sequence represented by SEQ ID NO:36. The amino acid sequence of PCfMALV₂₅₄, also represented as SEQ ID NO:35, predicts that PCfMALV₂₅₄ has an estimated molecular weight of about 36 kDa and an estimated pI of about 4.9.

Comparison of amino acid sequence SEQ ID NO:32 with amino acid sequences reported in GenBank indicates that SEQ ID NO:32 showed the most homology, i.e., about 71% identity, with a *Drosophila melanogaster* malvolio protein, GenBank Accession No. 780776. Comparison of SEQ ID NO:34 with nucleic acid sequences reported in GenBank indicates that SEQ ID NO:34 showed the most homology, i.e., about 63% identity, with a *Drosophila melanogaster* malvolio nucleic acid molecule,

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GenBank Accession number U23948. Percent identity calculations were performed using GCG version 9.0 using default parameters.

Example 10

This example describes the cloning, sequencing, and recombinant expression of a
5 *C. felis* odorant-binding protein-like (OS-D) nucleic acid molecule. This example also describes the expression of OS-D mRNA in a variety of flea tissues.

A *C. felis* OS-D nucleic acid molecule of about 311 nucleotides was isolated from a cat blood-fed adult flea cDNA library, prepared as described in example 8 of PCT publication WO 96/11706 by Grieve et al., published April 25, 1996, by PCR
10 amplification as follows. Sense primer 5'newBsaI5', having a nucleotide sequence 5' CAA AAC TGG TCT CCC CGC TC 3', denoted SEQ ID NO:57 was used in combination with vector primer T7, having a nucleic acid sequence 5' TAA TAC GAC TCA CTA TAG GG 3', denoted SEQ ID NO:58, in a first PCR reaction using the cat blood-fed adult flea cDNA library as the template under standard PCR reaction and
15 thermocycling conditions. A 311-nucleotide fragment, denoted nCfOSD₃₁₁, was isolated and shown to encode a partial length protein of 45 amino acids having a sequence similar to *Drosophila melanogaster* OS-D protein. Since primer 5'newBsaI5' was designed to be specific for the *C. felis* serpin constant region, nCfOSD₃₁₁ is believed to have been fortuitously amplified in this PCR reaction.

20 To isolate a flea OS-D nucleic acid molecule encoding a full-length OS-D protein, nucleic acid molecule nCfOSD₃₁₁ was used to design primers for a nested PCR as follows. Sense primer OSD-R1, having a nucleotide sequence 5' GGT TCG CCT CTC TTC ACT TG 3', which is complementary in sequence to nucleotides 108-127 of nCfOSD₃₁₁, denoted SEQ ID NO:59, was used in combination with M13 reverse primer,
25 SEQ ID NO:54, in a first PCR reaction using the cat blood-fed adult *C. felis* cDNA library as the template. The product of the first reaction was diluted 1:50 and used as the template for a second PCR reaction using reverse primer OSD-R2, having a nucleotide sequence 5' CGG TTG GAT CGT AAA CTG CAG 3', which is complementary in sequence to nucleotides 52-72 of nCfOSD₃₁₁, denoted SEQ ID NO:60, and forward
30 primer T3, SEQ ID NO:56. Each PCR reaction was conducted under standard PCR

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reaction and thermocycling conditions with the exception that an annealing temperature of 55°C was used rather than 50°C.

A DNA fragment of about 365 nucleotides, referred to herein as nCfOSD₃₆₅, was isolated from the second PCR product and purified using a Gel Purification Kit, available from Qiagen. The purified fragment was ligated into the pCRII™ TA cloning vector, available from Invitrogen, and sequenced using standard sequencing methods. Sequencing revealed that nucleotides 294-365 of nCfOSD₃₆₅ match nucleotides 1-72 of molecule nCfOSD₃₁₁ described above. The sequences from the partial length clones described were aligned to produce a sequence including a full-length coding region of 604 nucleotides, referred to as nCfOSD₆₀₄, denoted herein as SEQ ID NO:37, where nCfOSD₃₁₁ is identical in sequence to nucleotides 294-604 of SEQ ID NO:37 and nCfOSD₃₆₅ is identical in sequence to nucleotides 1-365 of SEQ ID NO:37. The complement of SEQ ID NO:37 is represented herein as SEQ ID NO:39.

Translation of SEQ ID NO:37 suggests that nucleic acid molecule nCfOSD₆₀₄ encodes a full-length OS-D protein of 135 amino acids, referred to herein as PCfOSD₁₃₅, having an amino acid sequence represented by SEQ ID NO:38, assuming the initiation codon spans from nucleotide 26 through nucleotide 28 of SEQ ID NO:37 and the termination codon spans from nucleotide 431 through nucleotide 433 of SEQ ID NO:37. The coding region encoding PCfOSD₁₃₅, is represented by nucleic acid molecule nCfOSD₄₀₅, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:40 and a complementary strand with nucleic acid sequence represented by SEQ ID NO:42. The amino acid sequence of PCfOSD₁₃₅, also represented as SEQ ID NO:41, predicts that PCfOSD₁₃₅ has an estimated molecular weight of about 15 kDa and an estimated pI of about 8.6. Analysis of SEQ ID NO:38 suggests the presence of a signal peptide encoded by a stretch of amino acids spanning from about amino acid 1 through about amino acid 20. The proposed mature protein, denoted herein as PCfOSD₁₁₅, contains about 115 amino acids corresponding to amino acids 21 through 135 of SEQ ID NO:38. The predicted pI of the mature protein (i.e. the protein with the signal peptide removed) is 6.6.

Comparison of amino acid sequence SEQ ID NO:38 with amino acid sequences reported in GenBank indicates that SEQ ID NO:38 showed the most homology, i.e.,

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about 60% identity, with a *Schistocerca gregaria* chemosensory protein CSP-sg4, GenBank Accession No. 3283938. Comparison of SEQ ID NO:40 with nucleic acid sequences reported in GenBank indicates that SEQ ID NO:40 showed the most homology, i.e., about 58% identity, with a *Schistocerca gregaria* chemosensory protein CSP-sg4 nucleic acid molecule, GenBank Accession number AF070964. Comparison of SEQ ID NO:40 with nucleic acid molecules sequenced when screening the HNC subtracted and unsubtracted libraries described in Example 2 revealed that OS-D (i.e. SEQ ID NO:40) is expressed in each of these libraries. Additional sequence analysis revealed that there are four cysteines present in *C. felis* OS-D which are conserved in sequence alignments with the four cysteines of OS-D-like molecules of other insects, including *D. melanogaster* OS-D protein GenBank Accession No. U02546, *S. gregaria* chemosensory protein CSP-sg4, GenBank Accession number AF070964, and cockroach leg regenerative protein, GenBank Accession No. AF030340. Percent identity calculations and additional sequence analysis was performed using GCG version 9.0 using default parameters.

A nucleic acid molecule comprising nucleotides 91 through 447 of SEQ ID NO:37, encoding a predicted mature flea OS-D protein, was PCR amplified using the pBluescript™ clone described above as the template, using sense primer OSD-FE, having nucleotide sequence 5' CGC **GGA TCC** AGA AGA TAA ATA TAC TAG CAA ATT TGA TAA C 3', having a *Bam*HI site indicated in bold, designated herein as SEQ ID NO:61, and anti-sense primer OSD-RE, having nucleotide sequence 5' GAG GAA **TTC CTC** TTT TTG GAA ATT TAA ACT GTA ACG G 3', having an *Eco*RI site indicated in bold, designated herein as SEQ ID NO:62. PCR reactions were performed using standard PCR reaction and thermocycling conditions described in Example 4; the product was separated by agarose gel electrophoresis, and a fragment was excised and purified using a Gel Purification Kit, available from Qiagen. The fragment was digested with *Bam*HI and *Eco*RI and ligated into the vector pTrcHisB, available from Invitrogen, that had been digested with *Bam*HI and *Eco*RI and treated with alkaline phosphatase. The resulting recombinant molecule, referred to herein as pTrc-nCfOSD₃₅₇, was transformed into *E. coli* strain BL21, available from Novagen, to form recombinant cell *E. coli*:pTrc-nCfOSD₃₅₇.

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The recombinant cell was grown under standard conditions then incubated in the presence of 0.5 mM IPTG to induce expression of recombinant protein, predicted to be approximately 17-kDa. Expression of protein was confirmed using Coomassie-blue-stained Tris-glycine gel and by Western blot using a T7 tag antibody which showed
5 expression of an about 17 kDa protein.

A Northern Blot analysis was conducted as follows to determine whether OS-D mRNA is expressed exclusively in HNC tissues. HNC tissues were dissected from 1500 adult cat blood-fed *C. felis* having a male to female ratio of 1:4. Total RNA was separately extracted from HNC tissues and the HNC-less carcasses that resulted from
10 these dissections using a standard guanidine lysis method, described by Sambrook et al., *ibid.*

Approximately 15 µg of each RNA were separated by electrophoresis on either Glyoxal gels with RNA prepared according to Burnett, Biotechniques, 22:4, pp. 668-671, 1997, or formaldehyde gels with RNA prepared according to Sambrook et al., *ibid.*
15 Following electrophoresis, RNA was blotted to Hybond N nylon membranes, available from Amersham, according to the protocols described in Burnett and Sambrook et al. *ibid.* The membrane was UV cross-linked using the Stratalinker®, available from Stratagene, and placed in approximately 30 ml of hybridization buffer consisting of 5X SSPE, 1% Sarcosyl, 50% formamide, 5X Denhardt's reagent and 25 mM EDTA at 42°C
20 for approximately 3 to 6 hours. A probe comprising the flea OS-D nucleic acid molecule nCfOSD₃₅₇ was labeled with α -³²P-ATP using a DNA labeling kit, available from Amersham and added to the buffer at a concentration of approximately 1 x 10⁶ cpm/ml, and allowed to hybridize for about 14 to 18 hours at 42°C. The blot was then washed twice for 10 minutes per wash in 0.5X SSPE and 0.1% sarcosyl at 55°C and
25 exposed to film for autoradiography. Analysis of the developed film showed that there was greater expression of OS-D mRNA in HNC tissues compared to non-HNC tissues, indicating possible upregulation of OS-D in flea head and nerve cords.

Example 11

This example describes the cloning and sequencing of a *C. felis* N-methyl-D-
30 aspartate receptor associated (NMDA) nucleic acid molecule.

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A TA clone from the HMT EST library described in Example 1 was sequenced using standard sequencing methods and shown to have significant homology to NMDA genes. This clone was digested with *Eco*RI to excise an insert 279 nucleotides in length, referred to as flea NMDA nucleic acid molecule nCfNMDA₂₇₉. The insert was isolated
5 by gel purification using a Gel Purification kit, available from Qiagen. Approximately 50 ng of purified nCfNMDA₂₇₉ was used to construct a ³²P α-dATP labeled DNA probe using a Megaprime DNA labeling kit, available from Amersham, using the manufacturer's protocols.

The ³²P α-dATP labeled probe was used in a plaque lift hybridization procedure
10 to isolate a clone from the HMT lambda-ZAP unsubtracted cDNA library described in Example 1, using standard hybridization conditions described in Example 4. Plaques that hybridized strongly to the probe were isolated and subjected to *in vivo* excision. *In vivo* excision was performed using the Stratagene Ex-Assist™ helper phage system and protocols, to convert a positive plaque to pBluescript™ plasmid DNA and sequencing
15 was conducted following preparation of DNA with a Qiagen Qiaprep™ spin mini prep kit using the manufacturer's instructions and restriction enzyme digestion with about 1 μl of 20 U/μl each of *Eco*RI and *Xho*I, available from New England Biolabs. A clone was isolated from a secondary plaque, containing a nucleic acid molecule of about 1227 base pairs, referred to herein as nCfNMDA₁₂₂₇, having a nucleotide sequence denoted
20 herein as SEQ ID NO:43. The complement of SEQ ID NO:43 is represented herein as SEQ ID NO:45. Sequencing of nCfNMDA₂₇₉ indicates that nCfNMDA₂₇₉ shared 100% identity with nucleotides 709 through 987 of SEQ ID NO:43.

Translation of SEQ ID NO:43 suggests that nucleic acid molecule nCfNMDA₁₂₂₇ encodes a full-length NMDA protein of 246 amino acids, referred to herein as
25 PCfNMDA₂₄₆, having an amino acid sequence represented by SEQ ID NO:44, assuming the initiation codon spans from nucleotide 312 through nucleotide 314 of SEQ ID NO:43 and the termination codon spans from nucleotide 1050 through nucleotide 1052 of SEQ ID NO:43. The coding region encoding PCfNMDA₂₄₆, is represented by nucleic acid molecule nCfNMDA₇₃₈, having a coding strand with the nucleic acid sequence
30 represented by SEQ ID NO:46 and a complementary strand with nucleic acid sequence represented by SEQ ID NO:48. The amino acid sequence of PCfNMDA₂₄₆, also

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represented as SEQ ID NO:47 predicts that PCfNMDA₂₄₆ has an estimated molecular weight of about 27 kDa and an estimated pI of about 5.6.

Comparison of amino acid sequence SEQ ID NO:44 with amino acid sequences reported in GenBank indicates that SEQ ID NO:44 showed the most homology, i.e.,
5 about 34% identity, with a *Emericella nidulans* negative-acting regulatory protein, GenBank Accession No. 3676056. Comparison of SEQ ID NO:46 with nucleic acid sequences reported in GenBank indicates that SEQ ID NO:46 showed the most homology, i.e., about 45% identity, with a *Drosophila melanogaster* NMDA nucleic acid molecule, GenBank Accession number L37377. Percent identity calculations were
10 performed using GCG version 9.0 using default parameters.

Example 12

This example describes the cloning and sequencing of *C. felis* chemical sense related lipophilic ligand binding protein nucleic acid molecule. This example also describes the expression of chemical sense related lipophilic ligand binding protein
15 mRNA in a variety of flea tissues.

A TA clone from the HNC EST library described in Example 2 was sequenced using standard sequencing methods and shown to have significant homology to chemical sense related lipophilic ligand binding protein (CLBP) genes. This clone was digested with *EcoRI* to excise an insert 339 nucleotides in length, referred to as flea CLBP
20 nucleic acid molecule nCfCLBP₃₃₉. The insert was isolated by gel purification using a Gel Purification kit, available from Qiagen, Chatsworth, CA. Approximately 50 ng of purified nCfCLBP₃₃₉ was used to construct a ³²P α-dATP labeled DNA probe using a Megaprime DNA labeling kit, available from Amersham, using the manufacturer's protocols.

25 The ³²P α-dATP labeled probe was used in a standard plaque lift hybridization procedure to isolate a clone from the HNC lambda-ZAP unsubtracted cDNA library described in Example 2. The following hybridization conditions were used. Filters were hybridized with about 5 X 10⁷ counts per minute (cpm) per ml of the probe in 100 ml of buffer (5X SSPE, 1 % Sarcosyl, 0.1 mg/ml BLOTTO) at 45°C for about 14 hours. The
30 filters were washed twice for 20 minutes per wash in 500 ml of 0.5X SSPE and 0.1% Sarcosyl at 55°C and subjected to autoradiography. Two plaques that hybridized

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strongly to the probe were isolated and subjected to *in vivo* excision using the Stratagene Ex-Assist™ helper phage system and protocols. Miniprep DNA was prepared from each positive clone using a Quantum Prep mini prep kit, available from BioRad, Hercules, CA, and sequenced using standard sequencing procedures. Sequencing revealed that the

5 two positive clones share 97% amino acid identity to each other. The first clone contained a nucleic acid molecule of about 633 nucleotides, referred to herein as nCfCLBP1A₆₃₃, having a nucleotide sequence denoted herein as SEQ ID NO:153. The complement of SEQ ID NO:153 is represented herein as SEQ ID NO:155. The second clone contained a nucleic acid molecule of about 631 nucleotides, referred to herein as

10 nCfCLBP2A₆₃₁, having a nucleotide sequence denoted herein as SEQ ID NO:162. The complement of SEQ ID NO:162 is represented herein as SEQ ID NO:164. Sequencing of nCfCLBP₃₄₀ indicated that nCfCLBP₃₃₉ shared 100% identity with nucleotides 1 through 339 of SEQ ID NO:153 and shared 100% identity with nucleotides 2 through 339 of SEQ ID NO:162.

15 Translation of SEQ ID NO:153 suggests that nucleic acid molecule nCfCLBP1A₆₃₃ encodes a full-length CLBP protein of 147 amino acids, referred to herein as PCfCLBP1A₁₄₇, having an amino acid sequence represented by SEQ ID NO:154, assuming the initiation codon spans from nucleotide 67 through nucleotide 69 of SEQ ID NO:153 and the termination codon spans from nucleotide 511 through

20 nucleotide 513 of SEQ ID NO:153. The coding region encoding PCfCLBP1A₁₄₇ is represented by nucleic acid molecule nCfCLBP1A₄₄₁, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:156 and a complementary strand with nucleic acid sequence represented by SEQ ID NO:158. The amino acid sequence of PCfCLBP1A₁₄₇, also represented by SEQ ID NO:157, predicts that PCfCLBP1A₁₄₇ has

25 an estimated molecular weight of about 15 kDa and an estimated pI of about 5.

Analysis of SEQ ID NO:154 suggests the presence of a signal peptide encoded by a stretch of amino acids spanning from about amino acid 1 through about amino acid 19. The proposed mature protein, denoted herein as PCfCLBP1A₁₂₈, contains 128 amino acids which is represented herein as SEQ ID NO:160. PCfCLBP1A₁₂₈ is encoded by a

30 nucleic acid molecule denoted nCfCLBP1A₃₈₄ having a coding strand with nucleic acid sequence SEQ ID NO:159 and a complementary strand with SEQ ID NO:161.

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Translation of SEQ ID NO:162 suggests that nucleic acid molecule nCfCLBP2A₆₃₁ encodes a full-length CLBP protein of 147 amino acids, referred to herein as PCfCLBP2A₁₄₇, having an amino acid sequence represented by SEQ ID NO:163, assuming the initiation codon spans from nucleotide 65 through nucleotide 67 of SEQ ID NO:162 and the termination codon spans from nucleotide 509 through nucleotide 511 of SEQ ID NO:162. The coding region encoding PCfCLBP2A₁₄₇, is represented by nucleic acid molecule nCfCLBP2A₄₄₁, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:165 and a complementary strand with nucleic acid sequence represented by SEQ ID NO:167. The amino acid sequence of PCfCLBP2A₁₄₇ predicts that PCfCLBP2A₁₄₇ has an estimated molecular weight of about 15 kDa and an estimated pI of about 5.

Analysis of SEQ ID NO:163 suggests the presence of a signal peptide encoded by a stretch of amino acids spanning from about amino acid 1 through about amino acid 19. The proposed mature protein, denoted herein as PCfCLBP2A₁₂₈, contains about 128 amino acids which is represented herein as SEQ ID NO:169. PCfCLBP2A₁₂₈ is encoded by a nucleic acid molecule denoted nCfCLBP2A₃₈₄ having a coding strand with nucleic acid sequence SEQ ID NO:168 and a complementary strand with SEQ ID NO:170.

Comparison of amino acid sequences SEQ ID NO:154 and SEQ ID NO:163 with amino acid sequences reported in GenBank indicates that each sequence showed the most homology, i.e., about 29% identity, with a *Drosophila melanogaster* pheromone binding protein related protein 2 (PBPRP-2), GenBank Accession No. 1709595. Percent identity calculations were performed using GCG version 9.0 using default parameters. Blast comparison of nucleic acid sequences SEQ ID NO:156 and SEQ ID NO:165 with nucleic acid sequences reported in GenBank indicates that each sequence showed the most homology to a human Xp22 PAC PRC11-5G11 nucleic acid molecule, GenBank Accession number AC002369. Pairwise identity could not be performed as the human clone in GenBank is too large to load into GCG version 9.0. Blast comparison performed using default parameters showed an insignificant level of identity of 0.87. Additional sequence analysis revealed that there are six cysteines present in *C. felis* CLBP which are conserved in sequence alignments with the six cysteines of neuronal/sense-related molecules in the PBP/GOBP family, including *D. melanogaster*

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PBPRP-2, GenBank Accession No. 1709595, and PBPRP-5, GenBank Accession No. P54195, proteins, and *Phormia regina* chemical sense related lipophilic ligand binding protein (CSRLLBP), GenBank Accession No. S65458.

5 A Northern Blot analysis was conducted to determine whether CLBP mRNA is expressed exclusively in HNC tissues. HNC tissues were dissected, total RNA was isolated and separated by electrophoresis as described in Example 10.

Following electrophoresis, RNA was blotted as described in Example 10 and a probe comprising clone nCfCLBP₃₄₀ labeled with α -³²P-ATP was added to the buffer at a concentration of approximately 1×10^6 cpm/ml and allowed to hybridize for about 14 to 10 18 hours. The blot was then washed as described in Example 10 and exposed to film for autoradiography. Analysis of the developed film showed that there was greater expression of CLBP mRNA in HNC tissues compared to non-HNC tissues, indicating possible upregulation of CLBP in flea head and nerve cords.

The coding region of nCfCLBP2A₆₃₁, i.e. SEQ ID NO:162, was PCR amplified 15 from the pBluescript™ clone described above as the template, using sense primer 2A1BamSen having nucleotide sequence 5' ATG GAT CCG GCA AAA TAT ACC AAA GAA GAA G 3', having a *Bam*HI site indicated in bold, designated herein as SEQ ID NO:1952, and anti-sense primer 2A1antiR1, having nucleotide sequence 5' ATG AAT TCT TAT ATT GGT ATC GCG TCC ATT 3', having a *Eco*RI site indicated in 20 bold, designated herein as SEQ ID NO:1953. PCR reactions were performed using the following thermocycling conditions: (a) one cycle at 95°C for one minute; (b) five cycles at 94°C for ten seconds, 49°C for twenty-five seconds, and 69°C for one minute; and (c) twenty-three cycles at 94°C for ten seconds, 53°C for twenty seconds, and 69°C for seventy-five seconds, in reactions containing 0.2 mM dNTPs, 1 μ M of each primer, 0.5 25 μ l of 5U/ μ l *KlenTaq* Advantage polymerase, available from Clontech, 1 μ l of 1 μ g/ μ l template, and 1X *KlenTaq* buffer, hereinafter referred to as "standard PCR conditions". The PCR product was digested with *Bam*HI and *Eco*RI and ligated into the vector pTrcHisB, available from Invitrogen, that had been digested with *Bam*HI and *Eco*RI. The resulting recombinant molecule, referred to herein as pTrc- nCfCLBP2A₄₄₁, was 30 transformed into *E. coli* strain BL21, available from Novagen Inc., Madison, WI, to form recombinant cell *E. coli*:pTrc- nCfCLBP2A₄₄₁.

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The recombinant cell was grown under standard conditions and then incubated in the presence of 0.5 μ M isopropylthio- β -galactoside (IPTG) to induce expression of recombinant protein. Expression was confirmed using Coomassie-blue-stained Tris-glycine gel and by Western blot using a T7 tag antibody, available from Novagen, which showed expression of an about 18 kDa protein. The protein product was purified as follows. The recombinant cells were collected by centrifugation, the supernatant was discarded and the pellets were resuspended and homogenized in 60ml (total) of 50mM Tris pH8.0 containing 50mM NaCl and 1mM phenylmethylsulfonyl fluoride(PMSF). The sample was then passed through the microfluidizer five times, rocked at 4°C for 20 minutes, and centrifuged at 20,000 x G for 30minutes. The supernatant was collected and filtered through a 0.45um filter then run over a HiTrap Chelating column, available from Amersham Pharmacia, in 50mM Tris pH8 containing 50mM NaCl and 10mM imidazole and eluted with an increasing imidazole gradient. The recombinant protein was eluted at approximately 150mM imidazole. Fractions containing recombinant protein were pooled and concentrated using a Centricon Plus-20 (Amicon), and diafiltered into PBS. Quantification of the protein was performed by densitometry against a known standard.

Example 13

This Example describes the further characterization and expression of a Sodium/Hydrogen Transporter-like cDNA isolated by EST sequencing described in Example 1.

A cDNA designated clone 2231-94 was isolated from the unsubtracted HMT library as described in Example 1. Analysis of clone 2231-94 indicated that the cDNA, denoted nCfNAH₂₀₈₀, is about 2080 nucleotides in length, having a coding strand with nucleic acid sequence SEQ ID NO:1867 and a complementary sequence having SEQ ID NO:1869. Translation of SEQ ID NO:1867 suggests that nucleic acid molecule nCfNAH₂₀₈₀ encodes a full-length Sodium/Hydrogen Transporter-like protein of 608 amino acids, referred to herein as PCfNAH₆₀₈, having an amino acid sequence represented by SEQ ID NO:1868, assuming the initiation codon spans from nucleotide 45 through nucleotide 47 of SEQ ID NO:1867 and the termination codon spans from nucleotide 1869 through nucleotide 1871 of SEQ ID NO:1867. The coding region

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encoding PCfNAH₆₀₈, is represented by nucleic acid molecule nCfNAH₁₈₂₄, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:1870 and a complementary strand with nucleic acid sequence represented by SEQ ID NO:1871. The amino acid sequence of SEQ ID NO:1868, predicts that PCfNAH₆₀₈ has an estimated molecular weight of about 67.9 kDa and an estimated isoelectric point (pI) of about 6.47.

Comparison of amino acid sequence SEQ ID NO:1868 with amino acid sequences reported in GenBank indicates that SEQ ID NO:1868 showed the most homology, i.e., about 67.7% identity, with a sodium hydrogen exchanger NHE1 (Accession # AAD32689.1). Comparison of SEQ ID NO:1867 with nucleic acid sequences reported in GenBank indicates that SEQ ID NO:1867 showed the most homology, i.e., about 59.5% identity, with a *Drosophila melanogaster* sodium hydrogen exchanger NHE1 (Accession # AF142676). Percent identity calculations were performed using GCG version 9.0 using default parameters.

In order to express the full-length putative NAH protein, the entire coding region was amplified by PCR and then ligated into the InsectSelect™ expression vector pIB/V5-His, available from Invitrogen, as follows. Forward primer NAH-IS-FE, which corresponds to nucleotides 42-74 of SEQ ID NO:1867, having the sequence 5' GAC TAG TAA AAT GGG CGT TAA AAA TAT ATA TTT ATA CTG C 3', denoted SEQ ID NO:1939 and having a *SpeI* site indicated in bold, was used in conjunction with reverse primer NAH-IS-RE, which is complementary to nucleotides 1845-1867 of SEQ ID NO:1867, having the sequence 5' CCG CTC GAG GTA CTG CAC GTA CTA ACG TCA TC 3', denoted SEQ ID NO:1940 and having a *XhoI* restriction site indicated in bold, in a PCR reaction using SEQ ID NO:1867 as the template. Standard PCR reaction conditions were used with the following thermocycling conditions: (1) 94°C for 30 seconds, (2) 25 cycles of 94°C for 10 seconds, 55°C for 10 seconds and 72°C for 3 minutes. The products of this reaction were separated on a 1.5% agarose gel, and a band corresponding to an approximately 1825 nucleotide molecule was cut from the gel and purified using the QIAquick Gel Extraction Kit as described above. The PCR product was then digested with *SpeI* and *XhoI* restriction endonucleases for 18 hours at 37°. The digestion product was purified using the QIAquick Nucleotide Removal Kit, available

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from Qiagen, and ligated into the vector pIB/V5-His which had also been digested with *SpeI* and *XhoI* and treated with shrimp alkaline phosphatase, available from New England BioLabs, Inc., for 30 minutes at 37°. Following standard transformation procedures, a bacterial clone containing the plasmid pIB/V5-His-NAH was isolated.

- 5 DNA sequence analysis of the clone confirmed that nucleotides 42-1867 of SEQ ID NO:1867, referred to herein as nCfNAH₁₈₂₆, had been successfully ligated into the pIB/V5-His expression vector in frame with the C-terminal V5 epitope encoded by the vector.

- A Northern Blot analysis was conducted as described in Example 4 to determine
10 whether NAH mRNA is expressed only in certain life stages of the flea life cycle and whether NAH mRNA is expressed only in HMT tissue. Total RNA was extracted from eggs, first, third, and wandering larvae, pupae, unfed adults, and adults fed on cat blood for 0.25, 2, 8, and 24 hours. In addition, total RNA was extracted from hindguts and Malpighian tubules extracted from 24 hour cat blood-fed adult fleas, and from the
15 remaining body parts following the removal of hindguts and Malpighian tubules. Each RNA sample was separated by gel electrophoresis, transferred to nylon membranes and hybridized with α -³²P-ATP labeled nCfNAH₁₈₂₆ under the Northern Blotting conditions described in Example 4. Analysis of the developed film revealed that NAH mRNA was expressed in the 0.25, 2, and 8 hour adult fed timepoints only.

20 Example 14

This Example describes the further characterization of a Chloride Intracellular Channel-like cDNA isolated by EST sequencing described in Example 1.

- A cDNA designated clone 2233-24 was isolated from the unsubtracted HMT library as described in Example 1. Analysis of clone 2233-24 indicated that the cDNA,
25 denoted nCfCLIC₂₂₈₃ is about 2283 nucleotides in length, having a coding strand with nucleic acid sequence SEQ ID NO:1872 and a complementary sequence having SEQ ID NO:1874. Translation of SEQ ID NO:1872 suggests that nucleic acid molecule nCfCLIC₂₂₈₃ encodes a full-length Chloride Intracellular Channel-like protein of 262 amino acids, referred to herein as PCfCLIC₂₆₂, having an amino acid sequence
30 represented by SEQ ID NO:1873, assuming the initiation codon spans from nucleotide 60 through nucleotide 62 of SEQ ID NO:1872 and the termination codon spans from

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nucleotide 846 through nucleotide 848 of SEQ ID NO:1872. The coding region encoding PCfCLIC₂₆₂, is represented by nucleic acid molecule nCfCLIC₇₈₆, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:1875 and a complementary strand with nucleic acid sequence represented by SEQ ID NO:1876. The amino acid sequence of SEQ ID NO:1873, predicts that PCfCLIC₂₆₂ has an estimated molecular weight of about 30.2 kDa and an estimated isoelectric point (pI) of about 6.02.

Comparison of amino acid sequence SEQ ID NO:1873 with amino acid sequences reported in GenBank indicates that SEQ ID NO:1873 showed the most homology, i.e., about 37.8% identity, with a *Homo sapiens* chloride intracellular channel 2 (Accession # NP001280.1). Comparison of SEQ ID NO:1872 with nucleic acid sequences reported in GenBank indicates that SEQ ID NO:1872 showed the most homology, i.e., about 37.5% identity with a *Homo sapiens* chloride intracellular channel 2 (Accession # NM001289). Percent identity calculations were performed using GCG version 9.0 using default parameters.

15 Example 15

This Example describes the further characterization of a Peritrophin-like cDNA, referred to herein as PL2, isolated by EST sequencing described in Example 1.

A cDNA designated clone 2232-23 was isolated from the unsubtracted HMT library as described in Example 1, denoted herein as SEQ ID NO:1877. Analysis of clone 2232-23 indicated that the cDNA, denoted nCfPL2₄₅₇, is about 457 nucleotides in length. Translation of the coding strand of nCfPL2₄₅₇ suggests that nucleic acid molecule nCfPL2₄₅₇ encodes a partial-length Peritrophin-like protein of 113 amino acids, referred to herein as PCfPL2₁₁₃, assuming a stop coding at nucleotides 342-344 of nCfPL2₄₅₇.

Additional coding sequence corresponding to the 5' end of nCfPL2₄₅₇ was isolated by PCR performed using a RACE cDNA pool prepared as described in Example 3 as template. A first PCR reaction was performed using reverse primer PL2-R1, which is complementary to nucleotides 167-187 of the nCfPL2₄₅₇ cDNA, having a nucleic acid sequence 5' GTC TGG AAG CTC AGG AAG AGG 3', denoted herein as SEQ ID NO:1941, in conjunction with forward Adapter Primer 1, SEQ ID NO:1933, described above under the following thermocycling conditions: (1) 94°C for 30 seconds, (2) 5

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cycles of 94°C for 10 seconds and 72°C for 4 minutes, (3) 5 cycles of 94°C for 10 seconds and 70°C for 4 minutes, and (4) 25 cycles of 94°C for 10 seconds then 68°C for 4 minutes. The product of this reaction was diluted 1:50 and used as template for a second PCR reaction as follows. Forward adapter primer 2, SEQ ID NO:1935, was used
5 with reverse primer PL2-R2, which is complementary to nucleotides 29-52 of the nCfPL2₄₅₇ cDNA, having a nucleic acid sequence 5' GTA ATA TGC GTG ACA ATC GTG TGG 3', denoted herein as SEQ ID NO:1942, using the thermocycling conditions described for the first PCR reaction. The resulting product was gel purified as described above to reveal a distinct band corresponding to nucleic acid molecule of approximately
10 900 bp in length. The fragment was then ligated into the pCR II TA Cloning vector, available from Qiagen and sequenced using an ABI PRISM 377 automatic DNA Sequencer. Sequencing revealed that nucleotides 791-835 of the fragment had 100% identity with nucleotides 1-45 of the nCfPL2₄₅₇ cDNA. The two sequences were aligned to form a contiguous sequence, denoted nCfPL2₁₂₉₁, which is about 1291 nucleotides in
15 length, having a coding strand with nucleic acid sequence SEQ ID NO:1878 and a complementary sequence having SEQ ID NO:1879. Translation of SEQ ID NO:1878 suggests that nucleic acid molecule nCfPL2₁₂₉₁ encodes a non full-length Peritrophin-like protein of 391 amino acids.

In order to isolate the additional sequence corresponding to the 5' end of SEQ ID
20 NO:1878, nested PCR reactions were performed using the RACE cDNA pool as template. For the first PCR, forward adapter primer AP1 was used with reverse primer PL2-R1 under standard PCR reaction conditions and the following thermocycling conditions: (1) 94 ° C for 1 minute, (2) 5 cycles of 94 ° C for 20 seconds and 70 ° C for 1 minute, (3) 5 cycles of 94 ° C for 20 seconds and 68 ° C for 1 minute, (4) 10 cycles of
25 94 ° C for 20 seconds and 66 ° C for 1 minute. The products of this reaction were diluted 1:50 in water and used as template for the second, nested PCR. The second PCR reaction used forward adapter primer AP2 in conjunction with reverse primer PL2-R5, which is complementary to nucleotides 70-93 of SEQ ID NO:1878, having a nucleotide sequence 5' CGG TGC AAG TTA TAG AAC CTT CCG 3', denoted herein as SEQ ID
30 NO:1943 under standard PCR reaction conditions using the following thermocycling conditions: (1) 94 ° C for 1 minute, (2) 5 cycles of 94 ° C for 20 seconds and 70 ° C for 1

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minute, (3) 5 cycles of 94 ° C for 20 seconds and 68 ° C for 1 minute, (4) 40 cycles of 94 ° C for 20 seconds and 66 ° C for 1 minute. The products of this reaction were separated by agarose gel electrophoresis and a band approximately 279 nucleotides in length was excised from the gel and purified as described above. The fragment, referred to as nCfPL2₂₇₉, having a coding nucleic acid sequence designated SEQ ID NO:1880 and a complementary sequence designated SEQ ID NO:1881, was then ligated into the pCROII TA Cloning vector, available from Qiagen, and sequenced as described above. Sequencing revealed that nucleotides 228-279 of nCfPL2₂₇₉ were identical to nucleotides 42-93 of SEQ ID NO:1878, however, nucleotides 186-228 of nCfPL2₂₇₉ had no significant similarity to SEQ ID NO:1878. This discrepancy may be the result of alternative RNA splicing or may be an artifact of the cDNA pool. To determine the reason for this discrepancy, additional fragments corresponding to this region were isolated by PCR from flea cDNA libraries from adult midguts, hindgut and Malpighian tubules and mixed instar larvae using techniques described herein. Sequence analysis of fragments obtained from these libraries revealed that these fragments were identical in sequence to the sequence of nCfPL2₂₇₉, therefore, the region of SEQ ID NO:1878 which did not align to nCfPL2₂₇₉ was deemed to be an artifact and was not used in subsequent alignments.

The PL2 sequences described above were aligned to form a contiguous sequence, denoted nCfPL2₁₄₇₇, which is about 1477 nucleotides in length, having a coding strand with nucleic acid sequence SEQ ID NO:1882 and a complementary sequence having SEQ ID NO:1884. Translation of SEQ ID NO:1882 suggests that nucleic acid molecule nCfPL2₁₄₇₇ encodes a full-length Peritrophin-like protein of 453 amino acids, referred to herein as PCfPL2₄₅₃, having an amino acid sequence represented by SEQ ID NO:1883, assuming an initiation codon spanning from nucleotide 3 through nucleotide 5 of SEQ ID NO:1882 and a termination codon spanning from nucleotide 1362 through nucleotide 1364 of SEQ ID NO:1882. The coding region encoding PCfPL2₄₅₃, is represented by nucleic acid molecule nCfPL2₁₃₅₉, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:1885 and a complementary strand with nucleic acid sequence represented by SEQ ID NO:1886. The amino acid sequence of SEQ ID

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NO:1883, predicts that PCfPL2₄₅₃ has an estimated molecular weight of about 49 kDa and an estimated isoelectric point (pI) of about 4.7.

Comparison of amino acid sequence SEQ ID NO:1883 with amino acid sequences reported in GenBank indicates that SEQ ID NO:1883 showed the most
5 homology, i.e., about 28% identity, with a *Drosophila melanogaster* locus AE003474 protein (Accession # AAF47629). Comparison of SEQ ID NO:1882 with nucleic acid sequences reported in GenBank indicates that SEQ ID NO:1882 showed the most homology, i.e., about 50% identity, *Penaeus semisulcatus* (a crustacean) peritrophin-like protein 1 cDNA (Accession # AF095580). Percent identity calculations were performed
10 using GCG version 9.0 using default parameters.

Example 16

This Example describes the further characterization and expression of a Peritrophin-like sequence cDNA, referred to herein as PL3, isolated by EST sequencing described in Example 1.

15 A cDNA designated clone 2240-17 was isolated from the unsubtracted HMT library as described in Example 1. Analysis of clone 2240-17 indicated that the cDNA, denoted nCfPL3₄₀₆, is about 406 nucleotides in length, having a coding strand with nucleic acid sequence SEQ ID NO:1887 and a complementary sequence having SEQ ID NO:1889. Translation of SEQ ID NO:1887 suggests that nucleic acid molecule
20 nCfPL3₄₀₆ encodes a full-length Peritrophin-like protein of 81 amino acids, referred to herein as PCfPL3₈₁, having an amino acid sequence represented by SEQ ID NO:1888, assuming the initiation codon spans from nucleotide 20 through nucleotide 22 of SEQ ID NO:1887 and the termination codon spans from nucleotide 263 through nucleotide 265 of SEQ ID NO:1887. The coding region encoding PCfPL3₈₁, is represented by
25 nucleic acid molecule nCfPL3₂₄₃, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:1890 and a complementary strand with nucleic acid sequence represented by SEQ ID NO:1891. The amino acid sequence of SEQ ID NO:1888, predicts that PCfPL3₈₁ has an estimated molecular weight of about 9.1 kDa and an estimated isoelectric point (pI) of about 3.64.

30 Comparison of amino acid sequence SEQ ID NO:1888 with amino acid sequences reported in GenBank indicates that SEQ ID NO:1888 showed the most

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homology, i.e., about 34.2% identity, with a *Anopheles gambiae* peritrophin 1 protein (Accession # AAC39127). Comparison of SEQ ID NO:1887 with nucleic acid sequences reported in GenBank indicates that SEQ ID NO:1887 showed the most homology, i.e., about 37% identity, with a *Anopheles gambiae* chloride intracellular
5 channel 2 (Accession # AF030431). Percent identity calculations were performed using GCG version 9.0 using default parameters.

In order to express the full-length putative PL3 protein, the entire coding region was amplified by PCR and then ligated into the *E. coli* expression vector pTrcHisB, available from Invitrogen, as follows. Forward primer PL3FE, which corresponds to
10 nucleotides 70-93 of SEQ ID NO:1887, having the sequence 5' CGG GAT CCC GAA TAT GCT GAC GTA GAT GTG TG 3', denoted SEQ ID NO:1944, and having a *Bam*HI restriction endonuclease site indicated in bold, was used in conjunction with reverse primer PL3RE, which is complementary to nucleotides 245-269 of SEQ ID
NO:1887, having the sequence 5' GGA ATT CTG TTT TAT TCT GGT TGG TAA
15 CAT TC 3', denoted herein as SEQ ID NO:1945 and having an *Eco*RI restriction endonuclease site indicated in bold, in a PCR reaction using SEQ ID NO:1887 as the template under standard PCR reaction conditions and the following thermocycling conditions: (1) 94°C for 30 seconds, (2) 25 cycles of 94°C for 10 seconds, 55°C for 10 seconds and 72°C for 3 minutes. The reaction product was separated on a 1.5% agarose
20 gel, and a band corresponding to an approximately 200 nucleotide molecule, as visualized by agarose gel electrophoresis and ethidium bromide staining, was cut from the gel and purified using the QIAquick Gel Extraction Kit as described above.

The product of the PCR reaction was the digested with *Bam*HI and *Eco*RI restriction endonucleases, available from New England BioLabs, Inc. for 18 hours at
25 37 °C, purified using the QIAquick Nucleotide Removal Kit, available from Qiagen, and ligated into the vector pTrcHisB which had been similarly digested, treated with shrimp alkaline phosphatase, available from New England BioLabs, Inc., for 30 minutes at 37°C, and purified. Following standard transformation procedures into *E. coli* BL-21 competent cells, a bacterial clone containing the plasmid pTrcHisB-PL3 was isolated.
30 DNA sequence analysis of the clone confirmed that 70-269 of SEQ ID NO:1887 had been successfully ligated into the pTrcHisB expression vector in frame with the N-

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terminal T7 Tag epitope encoded by the vector. The recombinant protein encoded thereby is predicted to be 97 amino acids in length and have a molecular mass of 10.9 kDa, including the T7 Tag and have a pI of 4.08.

A recombinant PL3 protein was expressed as follows. Five mls of Luria broth
5 were inoculated with a glycerol stock of *E. coli* BL-21 competent cells, available from Novagen, Madison, WI, that had been transformed with the pTrcHisB-PL3 plasmid prepared as described above and allowed to grow overnight at 37°C under selection with 100 µg/ml ampicillin. A 1 ml aliquot of this culture was then used to inoculate 10 mls of fresh Luria broth containing 100 µg/ml ampicillin and the culture was allowed to grow
10 to an approximate OD reading of 0.5. A 1 ml aliquot of the culture was removed, the cells were pelleted by centrifugation and the supernatant discarded. The cells were resuspended in a solution of 100 µl PBS and 100 µl of 2X SDS-PAGE loading buffer (100 mM Tris pH 6.8, 4% SDS, 20% glycerol, 0.02% bromophenol blue, and 10% 2-mercaptoethanol). Following removal of the 1 ml aliquot described above, IPTG was
15 added to the remaining 9 ml culture to a final concentration of 5 mM of IPTG, the culture was incubated at 37°C for an additional 60 minutes, 1 ml was removed and the OD measured at approximately 0.6. The cells in this 1 ml sample were then pelleted by centrifugation and resuspended in a solution of 120 µl of PBS and 120 µl of SDS-PAGE loading buffer. Equal volumes of the IPTG-induced and uninduced lysates were loaded
20 onto a 14% Tris-Glycine SDS-PAGE gel, available from Novex, San Diego, CA. Following electrophoresis, the proteins were transferred from the SDS-PAGE gel to a nitrocellulose membrane and a Western blot analysis was performed using the T7 tag antibody, available from Novagen, which revealed an approximately 18 kDa protein was induced by IPTG. The fact that the recombinant PL3 protein ran at a higher molecular
25 weight than predicted is consistent with previous published results for other peritrophin proteins, and is thought to be due in part to the characteristically low pI of these proteins (Tellam *et al.*, (1999) Peritrophic Matrix Proteins, Insect Biochemistry and Molecular Biology, 29:87-101). Sequence analysis of this protein indicates that it contained the N-terminal T7 Tag encoded by the vector.

30 Four flasks, each containing 1 liter of Luria broth with 100 µg/ml ampicillin were inoculated with a starter culture of 5 ml of *E. coli* BL-21 cells transformed with the pTrcHisB-PL3 plasmid as described above. The cultures were allowed to grow at 37°C

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until the optical density reached approximately 0.500, at which time a 1 ml aliquot was removed from each flask as the pre-induction sample. IPTG was added to each 1 liter flask to a final concentration of 0.5 mM and the cultures allowed to grow at 37°C for 135 additional minutes, at which time a 1 ml aliquot was removed from each flask as the post-induction sample. The 1 ml aliquots were centrifuged, the supernatants were discarded and the pellets were resuspended in 100µl 2X SDS-PAGE loading buffer per each 0.5 optical density units measured. The pre-induction and post induction samples were then tested for recombinant PL3 protein expression using the standard Western blot techniques and the T7 Tag antibody described above. A protein running at approximately 18 kDa was detected in the post-induced but not in the pre-induced samples.

The cells from the remaining 4 liters of culture were centrifuged, the supernatants were discarded and the cell pellets were combined and resuspended in 120 mls of buffer A (50 mM Tris, PH 8.0, 20 mM NaCl, 1 mM phenylmethylsulfonyl fluoride (PMSF)). The sample was then passed through a microfluidizer five times then rocked at 4°C for 20 minutes. The sample was then centrifuged for 30 minutes and the supernatant collected. Western blot analysis of the supernatant showed that the recombinant PL3 protein was soluble in the first buffer A extraction. The buffer A supernatant containing the recombinant PL3 protein was then further purified by a nickel column, a Q2 anion exchange chromatography column, and cation exchange chromatography, using techniques well known to those of skill in the art.

Example 17

This Example describes the further characterization of a Peritrophin-like sequence cDNA, referred to herein as PL4, isolated by EST sequencing described in Example 1.

A cDNA designated clone 2244-71 was isolated from the unsubtracted HMT library as described in Example 1. Analysis of clone 2244-71 indicated that the cDNA, denoted nCfPLA₉₇₄, is about 974 nucleotides in length, having a coding strand with nucleic acid sequence SEQ ID NO:1892 and a complementary sequence having SEQ ID NO:1893. Translation of SEQ ID NO:1892 suggests that nucleic acid molecule nCfPLA₉₇₄ encodes a partial-length Peritrophin-like protein of 285 amino acids. Additional sequence corresponding to the 5' end was isolated by PCR using the RACE

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cDNA pool described in Example 3 as the template, as follows. Adapter Primer 1, i.e. SEQ ID NO:1933, was used as the forward primer in conjunction with reverse primer PL4-R1, which is complementary to nucleotides 229-251 of SEQ ID NO:1892, having a nucleic acid sequence 5' GAT ATC CAC TTT GAT CAG CGC AC 3', denoted herein as

5 SEQ ID NO:1946 in a PCR reaction under standard PCR reaction conditions and the following thermocycling conditions: (1) 94°C for 30 seconds, (2) 5 cycles of 94°C for 10 seconds and 72°C for 4 minutes, (3) 5 cycles of 94°C for 10 seconds and 70°C for 4 minutes, (4) 25 cycles of 94°C for 10 seconds then 68°C for 4 minutes. The products of this reaction were diluted 1:50 and used as template in a second PCR reaction using

10 Adapter Primer 2, i.e. SEQ ID NO:1935 as the forward primer and reverse primer PL4-R2, which is complementary to nucleotides 58-78 of SEQ ID NO:1892, having a nucleic acid sequence 5' GGT ACT ACT CCT GGT GCG GGC 3', denoted herein as SEQ ID NO:1947, using the thermocycling conditions described for the first PCR reaction. The products of this reaction were gel purified as previously described and the fragment was

15 ligated into the pCR II TA Cloning vector, available from Qiagen, and sequenced to reveal of fragment of approximately 150 nucleotides in length. Sequence analysis revealed that nucleotides 68-146 of the fragment had 100% identity with nucleotides 1-79 of nCfPLA₉₇₄. The two sequences were aligned to form a contiguous sequence of about 1043 nucleotides in length, referred to as nCfPLA₁₀₄₃, having a coding strand with

20 SEQ ID NO:1894 and a complementary strand having SEQ ID NO:1895. However, the contiguous sequence does not appear to encode a starting methionine in the predicted protein sequence, thus, a second attempt to isolate the remaining coding sequences at the 5' end was performed as follows. A first PCR reaction was performed with Adapter Primer 1 as the forward primer and PL4-R2 as the reverse primer using the RACE

25 cDNA pool as the template under the thermocycling conditions described above. The products of this reaction were diluted 1:50 and used as the template in a second PCR reaction which used Adapter Primer 2 as the forward primer and reverse primer PL4-R4, which is complementary to nucleotides 58-80 of SEQ ID NO:1894, having the nucleic acid sequence 5' CCG TCG ACA TTA AAC TCA CCA TC 3', denoted SEQ ID

30 NO:1948, under the thermocycling conditions described for the first PCR reaction. The products of this reaction were gel purified as previously described and the fragment was

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ligated into the pCR II TA Cloning vector, available from Qiagen, and sequenced to reveal of fragment of approximately 100 nucleotides in length. Sequence analysis revealed that nucleotides 21-101 of the fragment had 100% identity with nucleotides 1-81 of SEQ ID NO:1892. The two sequences were aligned to form a contiguous
5 sequence that is 1062 nucleotides in length, referred to herein as nCfPLA₁₀₆₂, having a coding strand with SEQ ID NO:1896 and a complementary strand with SEQ ID NO:1898. Translation of SEQ ID NO:1896 suggests that nucleic acid molecule nCfPLA₁₀₆₂ encodes a full-length Peritrophin-like protein of 285 amino acids, referred to herein as PCfPLA₂₈₅, having an amino acid sequence represented by SEQ ID NO:1897,
10 assuming the initiation codon spans from nucleotide 19 through nucleotide 21 of SEQ ID NO:1896 and the termination codon spans from nucleotide 874 through nucleotide 876 of SEQ ID NO:1896. The coding region encoding PCfPLA₂₈₅, is represented by nucleic acid molecule nCfPLA₈₅₅, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:1899 and a complementary strand with nucleic acid
15 sequence represented by SEQ ID NO:1900. The amino acid sequence of SEQ ID NO:1897, predicts that PCfPLA₂₈₅ has an estimated molecular weight of about 31.4 kDa and an estimated isoelectric point (pI) of about 6.99.

Comparison of amino acid sequence SEQ ID NO:1897 with amino acid sequences reported in GenBank indicates that SEQ ID NO:1897 showed the most
20 homology, i.e., about 31.5% identity, with a *Drosophila melanogaster* Gasp precursor (Accession # AAD09748). Comparison of SEQ ID NO:1896 with nucleic acid sequences reported in GenBank indicates that SEQ ID NO:1896 showed the most homology, i.e., about 39.4% identity, with a *Drosophila melanogaster* Gasp precursor (Accession #AF070734). Percent identity calculations were performed using GCG
25 version 9.0 using default parameters.

A Northern Blot analysis was conducted as described in Example 4 to determine whether PL4 mRNA is expressed only in certain life stages of the flea life cycle and whether PL4 mRNA is expressed only in HMT tissue. Total RNA was extracted from eggs, first, third, and wandering larvae, pupae, unfed adults, and adults fed on cat blood
30 for 0.25, 2, 8, and 24 hours. In addition, total RNA was extracted from hindguts and Malpighian tubules extracted from 24 hour cat blood-fed adult fleas, and from the

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remaining body parts following the removal of hindguts and Malpighian tubules. Each RNA sample was separated by gel electrophoresis, transferred to nylon membranes and hybridized with α -³²P-ATP labeled nCfPL4₉₇₄ under the Northern Blotting conditions described in Example 4.

5 The results of the Northern blot assay are complex. Although stringent conditions were used, several bands with distinct expression patterns were seen. An approximately 1600 bp message was detected in the egg, first instar, third instar and wandering larval stages only. An approximately 1500 bp message was detected in all lifestages and adult fed timepoints, but with the strongest signals in the egg, first instar
10 larval, and unfed adult stages. A third message, which ran approximately 1200 bp, was detected in the egg, first instar larval, pupal, and adult lifestages, including all unfed and fed adult timepoints. All three of the messages detected were seen only in the HMT tissues, and were not detected in the carcass tissues.

 The detection of three mRNAs instead of one may be the result of the expression
15 of three highly homologous transcripts. It has been reported in the literature that peritrophin gene families have been found that consist of a number of highly related genes (See Schorderet *et al.*, 1998, cDNA and deduced amino acid sequences of a peritrophic membrane glycoprotein, 'peritrophin-48', from the larvae of *Lucilia cuprina*, Insect Biochemistry and Molecular Biology 28, 99-111). It is possible that these
20 transcripts represent the products of such a family or that the messages are the RNA products of alternative splicing of a single gene locus.

Example 18

 This Example describes the further characterization of a synaptic vesicle 2B-like sequence cDNA, isolated by EST sequencing described in Example 1.

25 A cDNA designated clone 2104-59 was isolated from the subtracted HMT library as described in Example 1, denoted herein as SEQ ID NO:358. DNA from clone 2104-59 was purified, and the insert used for plaque hybridization screening of the unsubtracted HMT cDNA library as follows. The insert from clone 2104-59 was excised by digestion with *Eco*RI, separated by agarose gel electrophoresis and purified
30 using the QiaQuick Gel Extraction kit, available from Qiagen. A Megaprime DNA labeling kit, available from Amersham Pharmacia, was used to incorporate α -³²P-labeled

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dATP into the random-primed probe mix. Hybridization and plaque purification were performed as previously described which resulted in the isolation of a clone containing an about 1875 nucleotide synaptic vesicle 2B-like sequence, referred to herein as nCfSVP₁₈₇₅, having a coding strand with nucleic acid sequence SEQ ID NO:1901 and a complementary sequence having SEQ ID NO:1903. Translation of SEQ ID NO:1901 suggests that nucleic acid molecule nCfSVP₁₈₇₅ encodes a full-length synaptic vesicle 2B-like protein of 530 amino acids, referred to herein as PCfSVP₅₃₀, having an amino acid sequence represented by SEQ ID NO:1902, assuming the initiation codon spans from nucleotide 44 through nucleotide 46 of SEQ ID NO:1901 and the termination codon spans from nucleotide 1634 through nucleotide 1636 of SEQ ID NO:1901. The coding region encoding PCfSVP₅₃₀ is represented by nucleic acid molecule nCfSVP₁₅₉₀, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:1904 and a complementary strand with nucleic acid sequence represented by SEQ ID NO:1905. The amino acid sequence of SEQ ID NO:1902, predicts that PCfSVP₅₃₀ has an estimated molecular weight of about 58.7 kDa and an pI of about 7.61.

Comparison of amino acid sequence SEQ ID NO:1902 with amino acid sequences reported in GenBank indicates that SEQ ID NO:1902 showed the most homology, i.e., about 32% identity, with a *Drosophila melanogaster* BACR7A4.y (Accession # CAB51685). Comparison of SEQ ID NO:1901 with nucleic acid sequences reported in GenBank indicates that SEQ ID NO:1901 showed the most homology, i.e., about 39% identity, with a *Rattus norvegicus* synaptic vesicle protein 2B (SVP2B) mRNA (Accession # L10362). Percent identity calculations were performed using GCG version 9.0 using default parameters.

Example 19

This Example describes the further characterization of a Voltage-Gated Chloride Channel-like sequence cDNA, isolated by EST sequencing described in Example 1.

A cDNA designated clone 2108-09 was isolated from the unsubtracted HMT library as described in Example 1. Analysis of clone 2108-09 indicated that the cDNA, denoted nCfVGCC₃₈₁, is about 381 nucleotides in length, having a coding strand with nucleic acid sequence SEQ ID NO:1906 and a complementary sequence having SEQ ID NO:1907. Translation of SEQ ID NO:1906 suggests that nucleic acid molecule

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nCfVGCC₃₈₁ encodes a partial-length Voltage-Gated Chloride Channel-like protein of 126 amino acids. Additional sequence corresponding to the 5' end was isolated by hybridization and PCR as follows.

The insert from clone 2108-09 was excised by digestion with *EcoRI*, separated
5 by agarose gel electrophoresis and purified using the QiaQuick Gel Extraction kit, available from Qiagen. A Megaprime DNA labeling kit, available from Amersham Pharmacia, was used to incorporate α -³²P-labeled dATP into the random-primed probe mix. Hybridization and plaque purification were performed on the unsubtracted HMT cDNA library as previously described which resulted in the isolation of a clone
10 containing an about 2191 nucleotide VGCC-like sequence, referred to herein as nCfVGCC₂₁₉₁, having a coding strand with nucleic acid sequence SEQ ID NO:1908 and a complementary sequence having SEQ ID NO:1909. Translation of SEQ ID NO:1908 suggests that nucleic acid molecule nCfVGCC₂₁₉₁ encodes a partial s VGCC-like protein of 595 amino acids.

15 In order to isolate the remaining coding regions at the 5' end, a PCR was performed using the RACE cDNA pool, prepared as described in Example 3, as the template as follows. Adapter Primer 1 was used as the forward primer in conjunction with reverse primer VGCC-R1, which is complementary to the nucleotides 1482-1503 of SEQ ID NO:1908, having a nucleic acid sequence 5' CGA TCA TGC GTC TAG
20 CAT TGG C 3', denoted herein as SEQ ID NO:1949 under standard PCR reaction conditions and the following thermocycling conditions: (1) 94°C for 30 seconds, (2) 5 cycles of 94°C for 10 seconds and 72°C for 4 minutes, (3) 5 cycles of 94°C for 10 seconds and 70°C for 4 minutes, (4) 25 cycles of 94°C for 10 seconds and 68°C for 4 minutes. The reaction products were separated on an agarose gel and a band
25 corresponding to an approximately 1970 nucleotide molecule was isolated, purified using a Gel Purification Kit, available from Qiagen, ligated into the pCR II TA cloning vector, available from Invitrogen, and sequenced using an ABI PRISM 377 automatic DNA Sequencer. Sequence analysis revealed an approximately 1968 nucleotide fragment, referred to as nCfVGCC₁₉₆₈, having a coding strand with SEQ ID NO:1910
30 and a complementary strand with SEQ ID NO:1911. Sequence analysis also revealed that nucleic acid molecule nCfVGCC₁₉₆₈ does not encode a start codon, thus, a second 5'

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RACE PCR was performed as follows in order to isolate additional sequence. Adapter Primer 1 was used as the forward primer in conjunction with reverse primer VGCC-R4 primer which is complementary to nucleotides 350-372 of SEQ ID NO:1910, having a nucleic acid sequence 5' CCC GCC CCA GTT CTA GGT TGT CC 3', denoted herein as
5 SEQ ID NO:1950, using the RACE cDNA pool prepared as described in Example 3 as the template, and the PCR reaction and thermocycling conditions as described for the first PCR reaction. The products of this reaction were then diluted 1:50 in water and used as the template in a second PCR reaction with Adapter Primer 2 as the forward primer in conjunction with reverse primer VGCC-R2, which is complementary to
10 nucleotides 134-153 of SEQ ID NO:1910, having a nucleic acid sequence 5' CAC ACC CAA CCT GAC CAG GC 3', denoted herein as SEQ ID NO:1951, under the PCR reaction and thermocycling conditions as described for the first PCR reaction.

The products of this reaction were gel purified as previously described and the fragment was ligated into the pCR II TA Cloning vector, available from Qiagen, and
15 sequenced to reveal of fragment of approximately 673 nucleotides in length, referred to herein as nCfVGCC₆₇₃, having a coding strand with SEQ ID NO:1912 and a complementary strand with SEQ ID NO:1913. Sequence analysis revealed that nucleotides 520-673 of the fragment had 100% identity with nucleotides 1-154 of SEQ ID NO:1910. The VGCC fragments were aligned to form a contiguous sequence that is
20 3126 nucleotides in length, referred to herein as nCfVGCC₃₁₂₆, having a coding strand with SEQ ID NO:1914 and a complementary strand with SEQ ID NO:1916. Translation of SEQ ID NO:1914 suggests that nucleic acid molecule nCfVGCC₃₁₂₆ encodes a full-length VGCC-like protein of 851 amino acids, referred to herein as PCfVGCC₈₅₁, having an amino acid sequence represented by SEQ ID NO:1915, assuming the initiation codon
25 spans from nucleotide 168 through nucleotide 170 of SEQ ID NO:1914 and the termination codon spans from nucleotide 2721 through nucleotide 2723 of SEQ ID NO:1914. The coding region encoding PCfVGCC₈₅₁ is represented by nucleic acid molecule nCfVGCC₂₅₅₃, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:1917 and a complementary strand with nucleic acid
30 sequence represented by SEQ ID NO:1918. The amino acid sequence of SEQ ID

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NO:1915, predicts that PCfVGCC₈₅₁ has an estimated molecular weight of about 93.4 kDa and an estimated pI of about 7.35.

Comparison of amino acid sequence SEQ ID NO:1915 with amino acid sequences reported in GenBank indicates that SEQ ID NO:1915 showed the most
5 homology, i.e., about 63.1% identity, with a *Oryctolagus cuniculus* (rabbit) chloride channel protein 3 (CLCN3) (Accession # AAB95163). Comparison of SEQ ID NO:1914 with nucleic acid sequences reported in GenBank indicates that SEQ ID NO:1914 showed the most homology, i.e., about 61.3% identity, with a *Oryctolagus cuniculus* chloride channel protein 3 (CLCN3) mRNA (Accession # AF029348).
10 Percent identity calculations were performed using GCG version 9.0 using default parameters.

A Northern Blot analysis was conducted as described in Example 4 to determine whether VGCC mRNA is expressed only in certain life stages of the flea life cycle and whether VGCC mRNA is expressed only in HMT tissue. Total RNA was extracted
15 from eggs, first, third, and wandering larvae, pupae, unfed adults, and adults fed on cat blood for 0.25, 2, 8, and 24 hours. In addition, total RNA was extracted from hindguts and Malpighian tubules extracted from 24 hour cat blood-fed adult fleas, and from the remaining body parts following the removal of hindguts and Malpighian tubules. Each RNA sample was separated by gel electrophoresis, transferred to nylon membranes and
20 hybridized with α -³²P-ATP labeled nCfVGCC₃₈₁ under the Northern Blotting conditions described in Example 4. An approximately 3 kB band was detected in all lifestages and adult unfed and fed timepoints, however, the intensity of the signal did vary between stages with the strongest signals seen in the egg, unfed adult, and 0.25 hour fed adult stages, and the weakest signals seen in the 3rd instar larval and pupal stages. A strong
25 signal was detectable in the 24 hour fed adult HMT tissues, but only a very weak signal was present in the carcass tissues.

Example 20

This Example describes the further characterization and expression of an Intersectin-like cDNA isolated by EST sequencing described in Example 2.

30 A cDNA designated clone 2225-23 was isolated from the unsubtracted HNC library as described in Example 2, denoted herein as SEQ ID NO:121. A Northern Blot

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analysis was conducted as described in Example 10 to determine whether clone 2225-23 mRNA is expressed exclusively in HNC tissues. For the hybridization step, a probe comprising the flea clone 2225-23 nucleic acid molecule was labeled with α -³²P-ATP using a DNA labeling kit, available from Amersham and added to the buffer at a concentration of approximately 1×10^6 cpm/ml, and allowed to hybridize for about 14 to 18 hours at 42°C. The blot was then washed twice for 10 minutes per wash in 0.5X SSPE and 0.1% sarcosyl at 55°C and exposed to film for autoradiography. Analysis of the developed film showed that there was greater expression of clone 2225-23 mRNA in HNC tissues compared to non-HNC tissues, indicating possible upregulation of clone 2225-23 in flea head and nerve cords.

Example 21

This Example describes the further characterization and expression of an Neuroendocrine Specific Protein C-like cDNA isolated by EST sequencing described in Example 2.

A cDNA designated clone 2249-19 was isolated from the unsubtracted HNC library as described in Example 2, denoted herein as SEQ ID NO:1775. A Northern Blot analysis was conducted as described in Example 10 to determine whether clone 2249-19 mRNA is expressed exclusively in HNC tissues. For the hybridization step, a probe having the nucleic acid sequence of clone 2249-19 was generated as follows. A PCR reaction was conducted using forward primer 2249-19for, having a nucleotide sequence 5' AGT CGC ATA GTG CAC TTC TGA ATG 3', denoted herein as SEQ ID NO:1954, and reverse primer 2249-19rev, having a nucleotide sequence 5' CTG ACA TCT GTT TCC ACA GCT C 3', denoted herein as SEQ ID NO:1955, using the HNC cDNA library prepared as described in Example 2 as the template under standard PCR reaction conditions and the following thermocycling conditions: (1) one minute at 95°C, (2) two cycles of 94°C for 10 seconds, 50°C for 20 seconds, and 72°C for 20 seconds, (3) thirty cycles of 94°C for 10 sec, 53°C for 20 sec, 72°C for 40 sec. The PCR product was ligated into the TA vector using a TA cloning kit, available from Invitrogen and the clone was digested with *Eco*R1 enzyme, and purified from an agarose gel. The purified nucleic acid molecule was labeled with α -³²P-ATP using a DNA labeling kit, available from Amersham and added to the buffer at a concentration of approximately 1×10^6

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cpm/ml, and allowed to hybridize for about 14 to 18 hours at 42°C. The blot was then washed twice for 10 minutes per wash in 0.5X SSPE and 0.1% sarcosyl at 55°C and exposed to film for autoradiography. Analysis of the developed film showed that there was expression of clone 2249-19 mRNA in HNC tissues and non-HNC tissues with 2
5 bands evident; one at approximately 1.5 Kb and one at approximately 2.5 Kb.

Example 22

This Example describes the further characterization and expression of an anoxia upregulated protein-like cDNA isolated by EST sequencing described in Example 2.

A TA clone from the HNC EST library described in Example 2 designated clone
10 2218-95, denoted herein as SEQ ID NO:1858 was sequenced using standard sequencing methods and shown to contain a non-full length nucleic acid molecule having significant homology to anoxia upregulated protein (AUP) genes. Additional sequence encoding an AUP gene was isolated as follows. A hybridization probe containing the nucleic acid sequence of SEQ ID NO:1858 was constructed as follows. A PCR reaction was
15 conducted using forward primer 2218-95for, having a nucleotide sequence 5' AAT AGT GAT GTT GTA AGA GTT AGG 3', denoted herein as SEQ ID NO:1956, and reverse primer 2218-95rev, having a nucleotide sequence 5' GTT TAA TAT TGC ATG TTT ATT CAT TAA AA 3', denoted herein as SEQ ID NO:1957, using the HNC cDNA library prepared as described in Example 2 as the template under standard PCR reaction
20 conditions and the following thermocycling conditions: (1) one minute at 95°C, (2) thirty cycles of 94°C for 10 sec, 55°C for 20 sec, 72°C for 20 sec. The PCR product was ligated into the TA vector using a TA cloning kit, available from Invitrogen and the clone was digested with *Eco*R1 enzyme, and purified from an agarose gel. The purified nucleic acid molecule was labeled with α -³²P-ATP using a DNA labeling kit, available
25 from Amersham.

The ³²P α -dATP labeled probe was used in a standard plaque lift hybridization procedure to isolate a clone from the HNC lambda-ZAP unsubtracted cDNA library described in Example 2. Hybridization was conducted as described in Example 12 and a plaque that hybridized strongly to the probe was isolated, purified and sequenced as
30 described in Example 12. Sequencing revealed that the clone contained a nucleic acid molecule of about 1181 nucleotides, referred to herein as nCfAUP₁₁₈₁, having a

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nucleotide sequence denoted herein as SEQ ID NO:1919. The complement of SEQ ID NO:1919 is represented herein as SEQ ID NO:1921.

Translation of SEQ ID NO:1919 suggests that nucleic acid molecule nCfAUP₁₁₈₁ encodes a full-length AUP protein of 102 amino acids, referred to herein as PCfAUP₁₀₂,
5 having an amino acid sequence represented by SEQ ID NO:1920, assuming the initiation codon spans from nucleotide 127 through nucleotide 129 of SEQ ID NO:1919 and the termination codon spans from nucleotide 433 through nucleotide 435 of SEQ ID NO:1919. The coding region encoding PCfAUP₁₀₂, is represented by nucleic acid molecule nCfAUP₃₀₆, having a coding strand with the nucleic acid sequence represented
10 by SEQ ID NO:1922 and a complementary strand with nucleic acid sequence represented by SEQ ID NO:1923. The amino acid sequence of PCfAUP₁₀₂, predicts that PCfAUP₁₀₂ has an estimated molecular weight of about 11.9 kDa and an estimated pI of about 10.5.

Comparison of amino acid sequence SEQ ID NO:1920 with amino acid
15 sequences reported in GenBank indicates that SEQ ID NO:1920 showed the most homology, i.e., about 52% identity, with a *Drosophila melanogaster* anoxia upregulated protein, GenBank Accession No. AAD38397. Percent identity calculations were performed using GCG version 9.0 using default parameters. Blast comparison of nucleic acid sequence SEQ ID NO:1919 with nucleic acid sequences reported in GenBank
20 indicates that SEQ ID NO:1919 showed the most homology to a clone from human chromosome 14q31 region containing gene for neurexin III, GenBank #AC007056. Pairwise identity could not be performed as the human clone in GenBank is too large to load into GCG version 9.0.

Example 23

25 This Example describes the further characterization of a neuroendocrine specific 7B2 polypeptide, isolated by EST sequencing described in Example 2.

A cDNA designated clone 2211-21 was isolated from the subtracted HNC library as described in Example 2, denoted herein as SEQ ID NO:92. DNA from clone 2211-21 was purified, and the insert used for plaque hybridization screening of the unsubtracted
30 HMT cDNA library as follows. The insert from clone 2211-21 was excised by digestion with *EcoRI*, separated by agarose gel electrophoresis and purified using the QiaQuick

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Gel Extraction kit, available from Qiagen. A Megaprime DNA labeling kit, available from Amersham Pharmacia, was used to incorporate α - ^{32}P -labeled dATP into the random-primed probe mix. The ^{32}P α -dATP labeled probe was used in a standard plaque lift hybridization procedure to isolate a clone from the HNC lambda- ZAP unsubtracted cDNA library, prepared as described in Example 2. The following hybridization conditions were used. Hybond-N filters, available from Amersham, were hybridized with about 2×10^6 counts per minute (cpm) per ml of the probe in 50 ml of hybridization solution (5X SSPE, 25mM EDTA pH 8.0, 5X Denhardt's reagent, 1.2% SDS, 0.020 mg/mL salmon sperm DNA) at 55°C for about 48 hours. The filters were washed once in 50mL 4X SSPE, 1% SDS for 15 minutes at 55°C, once in 50 mL 2X SSPE, 1% SDS for 10 minutes at 55°C, and washed twice in 50 mL 0.5X SSPE, 0.5% SDS for 10 minutes at 55°C. The filters were then subjected to autoradiography. One plaque that hybridized strongly to the probe was isolated and subjected to in vivo excision using the Stratagene Ex-Assist™ helper phage system and protocols. Miniprep DNA was prepared from the positive clone using a Miniprep kit and protocol, available from Qiagen, Chatsworth, CA, and sequenced using standard sequencing procedures. The clone, referred to as nCf7B2₂₁₆₁, contains a nucleic acid molecule of about 2161 nucleotides in length, having a coding strand with nucleic acid sequence SEQ ID NO:1924 and a complementary sequence having SEQ ID NO:1926.

Translation of SEQ ID NO:1924 suggests that nucleic acid molecule nCf7B2₂₁₆₁ encodes a full-length 7B2-like protein of 267 amino acids, referred to herein as PCf7B2₂₆₇, having an amino acid sequence represented by SEQ ID NO:1925, assuming the initiation codon spans from nucleotide 107 through nucleotide 109 of SEQ ID NO:1924 and the termination codon spans from nucleotide 908 through nucleotide 910 of SEQ ID NO:1924. The coding region encoding PCf7B2₂₆₇, is represented by nucleic acid molecule nCf7B2₈₀₁, having a coding strand with the nucleic acid sequence represented by SEQ ID NO:1927 and a complementary strand with nucleic acid sequence represented by SEQ ID NO:1928. The amino acid sequence of SEQ ID NO:1925, predicts that PCf7B2₂₆₇ has an estimated molecular weight of about 31 kDa and an estimated pI of about 5. Analysis of PCf7B2₂₆₇ suggests the presence of a signal peptide encoded by a stretch of amino acids spanning from about amino acid 1 through

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amino acid 20. The proposed mature protein, referred to herein as PCf7B2₂₄₇ contains 247 amino acids, designated SEQ ID NO:1930, and is encoded by a nucleic acid molecule referred to as nCf7B2₇₄₁, having a coding strand with SEQ ID NO:1929 and a complementary strand with SEQ ID NO:1931.

5 Comparison of amino acid sequence SEQ ID NO:1925 with amino acid sequences reported in GenBank indicates that SEQ ID NO:1925 showed the most homology, i.e., about 39% identity, with a *Drosophila melanogaster* protein, GenBank Accession No. AAF52036. Percent identity calculations were performed using GCG version 9.0 using default parameters. Blast comparison of nucleic acid sequence SEQ
10 ID NO:1924 with nucleic acid sequences reported in GenBank indicates that SEQ ID NO:1924 showed the most homology to a human chromosome 19, cosmid R28204 clone, GenBank #Accession No. AC006132. Pairwise identity could not be performed as the human clone in GenBank is too large to load into GCG version 9.0, however, the BLAST score was 0.20, which is not considered to be significant level of identity.

15 A Northern Blot analysis was conducted as described in Example 10 to determine whether 7B2 mRNA is expressed exclusively in HNC tissues. For the hybridization step, a probe having the nucleic acid sequence of clone 2211-21 was generated as follows. A PCR reaction was conducted using forward primer 2211-21for, having a nucleotide sequence 5' GCG CCA TGA AGA TTT CAG GCG 3', denoted
20 herein as SEQ ID NO:1958, and reverse primer 2211-21rev, having a nucleotide sequence 5' AAG TGC AAT GAA TCA TCA GCA AG 3', denoted herein as SEQ ID NO:1959, using the HNC cDNA library prepared as described in Example 2 as the template under standard PCR reaction conditions and the following thermocycling conditions: (1) one minute at 95°C, (2) five cycles of 94°C for 10 seconds, 50°C for 20
25 seconds, and 72°C for 20 seconds, (3) thirty cycles of 94°C for 10 sec, 53°C for 20 sec, 72°C for 40 sec. The PCR product was ligated into the TA vector using a TA cloning kit, available from Invitrogen and the clone was digested with *EcoR*I enzyme, and purified from an agarose gel. The purified nucleic acid molecule was labeled with α -³²P-ATP using a DNA labeling kit, available from Amersham and added to the buffer at a
30 concentration of approximately 1×10^6 cpm/ml, and allowed to hybridize for about 14 to 18 hours at 42°C. The blot was then washed twice for 10 minutes per wash in 0.5X

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SSPE and 0.1% sarcosyl at 55°C and exposed to film for autoradiography. Analysis of the developed film showed that after 2.5 days of exposure clone 2211-21 mRNA was expressed exclusively in HNC tissue.

While various embodiments of the present invention have been described in
5 detail, it is apparent that modifications and adaptations of those embodiments will occur to those skilled in the art. It is to be expressly understood, however, that such modifications and adaptations are within the scope of the present invention, as set forth in the following claims.

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What is claimed is:

1. An isolated nucleic acid molecule that hybridizes to a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:12, 5 SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:153, SEQ ID 10 NO:155, SEQ ID NO:156, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:161, SEQ ID NO:162, SEQ ID NO:164, SEQ ID NO:165, SEQ ID NO:167, SEQ ID NO:168, SEQ ID NO:170, SEQ ID NO:1859, SEQ ID NO:1860, SEQ ID NO:1861, SEQ ID NO:1863, SEQ ID NO:1864, SEQ ID NO:1866, SEQ ID NO:1867, SEQ ID NO:1869, SEQ ID NO:1870, SEQ ID NO:1871, SEQ ID NO:1872, SEQ ID NO:1874, SEQ ID NO:1875, 15 SEQ ID NO:1876, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1880, SEQ ID NO:1881, SEQ ID NO:1882, SEQ ID NO:1884, SEQ ID NO:1885, SEQ ID NO:1886, SEQ ID NO:1887, SEQ ID NO:1889, SEQ ID NO:1890, SEQ ID NO:1891, SEQ ID NO:1892, SEQ ID NO:1893, SEQ ID NO:1894, SEQ ID NO:1895, SEQ ID NO:1896, SEQ ID NO:1898, SEQ ID NO:1899, SEQ ID NO:1900, SEQ ID NO:1901, SEQ ID 20 NO:1903, SEQ ID NO:1904, SEQ ID NO:1905, SEQ ID NO:1906, SEQ ID NO:1907, SEQ ID NO:1908, SEQ ID NO:1909, SEQ ID NO:1910, SEQ ID NO:1911, SEQ ID NO:1912, SEQ ID NO:1913, SEQ ID NO:1914, SEQ ID NO:1916, SEQ ID NO:1917, SEQ ID NO:1918, SEQ ID NO:1919, SEQ ID NO:1921, SEQ ID NO:1922, SEQ ID NO:1923, SEQ ID NO:1924, SEQ ID NO:1926, SEQ ID NO:1927, SEQ ID NO:1928, 25 SEQ ID NO:1929, and SEQ ID NO:1931, under conditions comprising (a) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C.
2. The nucleic acid molecule of Claim 1, wherein said nucleic acid molecule 30 comprises a nucleic acid sequence that is at least about 70% identical to a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID

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NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:12,
SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:19, SEQ
ID NO:21, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:27, SEQ ID
NO:28, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:34, SEQ ID
5 NO:36, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:42, SEQ ID
NO:43, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:153, SEQ ID
NO:155, SEQ ID NO:156, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:161, SEQ ID
NO:162, SEQ ID NO:164, SEQ ID NO:165, SEQ ID NO:167, SEQ ID NO:168, SEQ ID
NO:170, SEQ ID NO:1859, SEQ ID NO:1860, SEQ ID NO:1861, SEQ ID NO:1863,
10 SEQ ID NO:1864, SEQ ID NO:1866, SEQ ID NO:1867, SEQ ID NO:1869, SEQ ID
NO:1870, SEQ ID NO:1871, SEQ ID NO:1872, SEQ ID NO:1874, SEQ ID NO:1875,
SEQ ID NO:1876, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1880, SEQ ID
NO:1881, SEQ ID NO:1882, SEQ ID NO:1884, SEQ ID NO:1885, SEQ ID NO:1886,
SEQ ID NO:1887, SEQ ID NO:1889, SEQ ID NO:1890, SEQ ID NO:1891, SEQ ID
15 NO:1892, SEQ ID NO:1893, SEQ ID NO:1894, SEQ ID NO:1895, SEQ ID NO:1896,
SEQ ID NO:1898, SEQ ID NO:1899, SEQ ID NO:1900, SEQ ID NO:1901, SEQ ID
NO:1903, SEQ ID NO:1904, SEQ ID NO:1905, SEQ ID NO:1906, SEQ ID NO:1907,
SEQ ID NO:1908, SEQ ID NO:1909, SEQ ID NO:1910, SEQ ID NO:1911, SEQ ID
NO:1912, SEQ ID NO:1913, SEQ ID NO:1914, SEQ ID NO:1916, SEQ ID NO:1917,
20 SEQ ID NO:1918, SEQ ID NO:1919, SEQ ID NO:1921, SEQ ID NO:1922, SEQ ID
NO:1923, SEQ ID NO:1924, SEQ ID NO:1926, SEQ ID NO:1927, SEQ ID NO:1928,
SEQ ID NO:1929, and SEQ ID NO:1931.

3. The nucleic acid molecule of Claim 1, wherein said nucleic acid molecule
is selected from the group consisting of: a nucleic acid molecule comprising a nucleic
25 acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ
ID NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:12,
SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:19, SEQ
ID NO:21, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:27, SEQ ID
NO:28, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:34, SEQ ID
30 NO:36, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:42, SEQ ID
NO:43, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:153, SEQ ID

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NO:155, SEQ ID NO:156, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:161, SEQ ID NO:162, SEQ ID NO:164, SEQ ID NO:165, SEQ ID NO:167, SEQ ID NO:168, SEQ ID NO:170, SEQ ID NO:1859, SEQ ID NO:1860, SEQ ID NO:1861, SEQ ID NO:1863, SEQ ID NO:1864, SEQ ID NO:1866, SEQ ID NO:1867, SEQ ID NO:1869, SEQ ID

5 NO:1870, SEQ ID NO:1871, SEQ ID NO:1872, SEQ ID NO:1874, SEQ ID NO:1875, SEQ ID NO:1876, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1880, SEQ ID NO:1881, SEQ ID NO:1882, SEQ ID NO:1884, SEQ ID NO:1885, SEQ ID NO:1886, SEQ ID NO:1887, SEQ ID NO:1889, SEQ ID NO:1890, SEQ ID NO:1891, SEQ ID NO:1892, SEQ ID NO:1893, SEQ ID NO:1894, SEQ ID NO:1895, SEQ ID NO:1896,

10 SEQ ID NO:1898, SEQ ID NO:1899, SEQ ID NO:1900, SEQ ID NO:1901, SEQ ID NO:1903, SEQ ID NO:1904, SEQ ID NO:1905, SEQ ID NO:1906, SEQ ID NO:1907, SEQ ID NO:1908, SEQ ID NO:1909, SEQ ID NO:1910, SEQ ID NO:1911, SEQ ID NO:1912, SEQ ID NO:1913, SEQ ID NO:1914, SEQ ID NO:1916, SEQ ID NO:1917, SEQ ID NO:1918, SEQ ID NO:1919, SEQ ID NO:1921, SEQ ID NO:1922, SEQ ID

15 NO:1923, SEQ ID NO:1924, SEQ ID NO:1926, SEQ ID NO:1927, SEQ ID NO:1928, SEQ ID NO:1929, and SEQ ID NO:1931; and a nucleic acid molecule comprising an allelic variant of a nucleic acid molecule selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:16, SEQ ID

20 NO:18, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:153, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:158, SEQ ID

25 NO:159, SEQ ID NO:161, SEQ ID NO:162, SEQ ID NO:164, SEQ ID NO:165, SEQ ID NO:167, SEQ ID NO:168, SEQ ID NO:170, SEQ ID NO:1859, SEQ ID NO:1860, SEQ ID NO:1861, SEQ ID NO:1863, SEQ ID NO:1864, SEQ ID NO:1866, SEQ ID NO:1867, SEQ ID NO:1869, SEQ ID NO:1870, SEQ ID NO:1871, SEQ ID NO:1872, SEQ ID NO:1874, SEQ ID NO:1875, SEQ ID NO:1876, SEQ ID NO:1877, SEQ ID

30 NO:1878, SEQ ID NO:1880, SEQ ID NO:1881, SEQ ID NO:1882, SEQ ID NO:1884, SEQ ID NO:1885, SEQ ID NO:1886, SEQ ID NO:1887, SEQ ID NO:1889, SEQ ID

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NO:1890, SEQ ID NO:1891, SEQ ID NO:1892, SEQ ID NO:1893, SEQ ID NO:1894,
SEQ ID NO:1895, SEQ ID NO:1896, SEQ ID NO:1898, SEQ ID NO:1899, SEQ ID
NO:1900, SEQ ID NO:1901, SEQ ID NO:1903, SEQ ID NO:1904, SEQ ID NO:1905,
SEQ ID NO:1906, SEQ ID NO:1907, SEQ ID NO:1908, SEQ ID NO:1909, SEQ ID
5 NO:1910, SEQ ID NO:1911, SEQ ID NO:1912, SEQ ID NO:1913, SEQ ID NO:1914,
SEQ ID NO:1916, SEQ ID NO:1917, SEQ ID NO:1918, SEQ ID NO:1919, SEQ ID
NO:1921, SEQ ID NO:1922, SEQ ID NO:1923, SEQ ID NO:1924, SEQ ID NO:1926,
SEQ ID NO:1927, SEQ ID NO:1928, SEQ ID NO:1929, and SEQ ID NO:1931.

4. The nucleic acid molecule of Claim 1, wherein said nucleic acid molecule
10 encodes a protein comprising an amino acid sequence that is at least about 75% identical
to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID
NO:8, SEQ ID NO:14, SEQ ID NO:20, SEQ ID NO:26, SEQ ID NO:32, SEQ ID
NO:38, SEQ ID NO:44, SEQ ID NO:154, SEQ ID NO:160, SEQ ID NO:163, SEQ ID
NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873, SEQ ID NO:1879,
15 SEQ ID NO:1883, SEQ ID NO:1888, SEQ ID NO:1897, SEQ ID NO:1902, SEQ ID
NO:1915, SEQ ID NO:1920, SEQ ID NO:1925, and SEQ ID NO:1930.

5. The nucleic acid molecule of Claim 1, wherein said nucleic acid molecule
encodes a protein comprising an amino acid sequence selected from the group consisting
of SEQ ID NO:2, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:20, SEQ ID NO:26, SEQ
20 ID NO:32, SEQ ID NO:38, SEQ ID NO:44, SEQ ID NO:154, SEQ ID NO:160, SEQ ID
NO:163, SEQ ID NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873,
SEQ ID NO:1879, SEQ ID NO:1883, SEQ ID NO:1888, SEQ ID NO:1897, SEQ ID
NO:1902, SEQ ID NO:1915, SEQ ID NO:1920, SEQ ID NO:1925, and SEQ ID
NO:1930.

25 6. A recombinant molecule comprising a nucleic acid molecule as set forth
in Claim 1 operatively linked to a transcription control sequence.

7. A recombinant virus comprising a nucleic acid molecule as set forth in
Claim 1.

8. A recombinant cell comprising a nucleic acid molecule as set forth in
30 Claim 1.

9. A method to produce a protein encoded by a nucleic acid molecule that hybridizes to a nucleic acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:6, SEQ ID NO:9, SEQ ID NO:12, SEQ ID NO:15, SEQ ID NO:18, SEQ ID NO:21, SEQ ID NO:24, SEQ ID NO:27, SEQ ID NO:30, SEQ ID NO:33, SEQ ID NO:36, SEQ ID NO:39, SEQ ID NO:42, SEQ ID NO:45, SEQ ID NO:48, SEQ ID NO:155, SEQ ID NO:158, SEQ ID NO:161, SEQ ID NO:164, SEQ ID NO:167, SEQ ID NO:170, SEQ ID NO:1860, SEQ ID NO:1863, SEQ ID NO:1866, SEQ ID NO:1869, SEQ ID NO:1871, SEQ ID NO:1874, SEQ ID NO:1876, SEQ ID NO:1880, SEQ ID NO:1884, SEQ ID NO:1886, SEQ ID NO:1889, SEQ ID NO:1891, SEQ ID NO:1893, SEQ ID NO:1895, SEQ ID NO:1898, SEQ ID NO:1900, SEQ ID NO:1903, SEQ ID NO:1905, SEQ ID NO:1907, SEQ ID NO:1909, SEQ ID NO:1911, SEQ ID NO:1913, SEQ ID NO:1916, SEQ ID NO:1918, SEQ ID NO:1921, SEQ ID NO:1923, SEQ ID NO:1926, SEQ ID NO:1928, and SEQ ID NO:1931, under conditions comprising (a) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (b) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C, said method comprising culturing a cell transformed with a nucleic acid molecule encoding said protein.

10. The method of Claim 9, wherein said nucleic acid molecule encodes a protein having an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:20, SEQ ID NO:26, SEQ ID NO:32, SEQ ID NO:38, SEQ ID NO:44, SEQ ID NO:154, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873, SEQ ID NO:1879, SEQ ID NO:1883, SEQ ID NO:1888, SEQ ID NO:1897, SEQ ID NO:1902, SEQ ID NO:1915, SEQ ID NO:1920, SEQ ID NO:1925, and SEQ ID NO:1930.

11. The method of Claim 9, wherein said nucleic acid molecule is selected from the group consisting of: a nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:4, SEQ ID NO:7, SEQ ID NO:10, SEQ ID NO:13, SEQ ID NO:16, SEQ ID NO:19, SEQ ID NO:22, SEQ ID NO:25, SEQ ID NO:28, SEQ ID NO:31, SEQ ID NO:34, SEQ ID NO:37, SEQ ID NO:40, SEQ ID NO:43, SEQ ID NO:46, SEQ ID NO:153, SEQ ID NO:156, SEQ ID NO:159, SEQ ID NO:162, SEQ ID NO:165, SEQ ID NO:168, SEQ ID

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NO:1859, SEQ ID NO:1861, SEQ ID NO:1864, SEQ ID NO:1867, SEQ ID NO:1870,
SEQ ID NO:1872, SEQ ID NO:1875, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID
NO:1881, SEQ ID NO:1882, SEQ ID NO:1885, SEQ ID NO:1887, SEQ ID NO:1890,
SEQ ID NO:1892, SEQ ID NO:1894, SEQ ID NO:1896, SEQ ID NO:1899, SEQ ID
5 NO:1901, SEQ ID NO:1904, SEQ ID NO:1906, SEQ ID NO:1908, SEQ ID NO:1910,
SEQ ID NO:1912, SEQ ID NO:1914, SEQ ID NO:1917, SEQ ID NO:1919, SEQ ID
NO:1922, SEQ ID NO:1924, SEQ ID NO:1927, and SEQ ID NO:1929; and a nucleic
acid molecule comprising an allelic variant of a nucleic acid molecule selected from the
group consisting of SEQ ID NO:1, SEQ ID NO:4, SEQ ID NO:7, SEQ ID NO:10, SEQ
10 ID NO:13, SEQ ID NO:16, SEQ ID NO:19, SEQ ID NO:22, SEQ ID NO:25, SEQ ID
NO:28, SEQ ID NO:31, SEQ ID NO:34, SEQ ID NO:37, SEQ ID NO:40, SEQ ID
NO:43, SEQ ID NO:46, SEQ ID NO:153, SEQ ID NO:156, SEQ ID NO:159, SEQ ID
NO:162, SEQ ID NO:165, SEQ ID NO:168, SEQ ID NO:1859, SEQ ID NO:1861, SEQ
ID NO:1864, SEQ ID NO:1867, SEQ ID NO:1870, SEQ ID NO:1872, SEQ ID
15 NO:1875, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1881, SEQ ID NO:1882,
SEQ ID NO:1885, SEQ ID NO:1887, SEQ ID NO:1890, SEQ ID NO:1892, SEQ ID
NO:1894, SEQ ID NO:1896, SEQ ID NO:1899, SEQ ID NO:1901, SEQ ID NO:1904,
SEQ ID NO:1906, SEQ ID NO:1908, SEQ ID NO:1910, SEQ ID NO:1912, SEQ ID
NO:1914, SEQ ID NO:1917, SEQ ID NO:1919, SEQ ID NO:1922, SEQ ID NO:1924,
20 SEQ ID NO:1927, and SEQ ID NO:1929.

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12. An isolated protein selected from the group consisting of: (a) an isolated protein encoded by a nucleic acid molecule that hybridizes to a nucleic acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:6, SEQ ID NO:9, SEQ ID NO:12, SEQ ID NO:15, SEQ ID NO:18, SEQ ID NO:21, SEQ ID NO:24, SEQ ID NO:27, SEQ ID NO:30, SEQ ID NO:33, SEQ ID NO:36, SEQ ID NO:39, SEQ ID NO:42, SEQ ID NO:45, SEQ ID NO:48, SEQ ID NO:155, SEQ ID NO:158, SEQ ID NO:161, SEQ ID NO:164, SEQ ID NO:167, SEQ ID NO:170, SEQ ID NO:1860, SEQ ID NO:1863, SEQ ID NO:1866, SEQ ID NO:1869, SEQ ID NO:1871, SEQ ID NO:1874, SEQ ID NO:1876, SEQ ID NO:1880, SEQ ID NO:1884, SEQ ID NO:1886, SEQ ID NO:1889, SEQ ID NO:1891, SEQ ID NO:1893, SEQ ID NO:1895, SEQ ID NO:1898, SEQ ID NO:1900, SEQ ID NO:1903, SEQ ID NO:1905, SEQ ID NO:1907, SEQ ID NO:1909, SEQ ID NO:1911, SEQ ID NO:1913, SEQ ID NO:1916, SEQ ID NO:1918, SEQ ID NO:1921, SEQ ID NO:1923, SEQ ID NO:1926, SEQ ID NO:1928, and SEQ ID NO:1931, under conditions comprising (1) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (2) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C; and (b) an isolated protein comprising an amino acid sequence that is at least about 75% identical to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:20, SEQ ID NO:26, SEQ ID NO:32, SEQ ID NO:38, SEQ ID NO:44, SEQ ID NO:154, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873, SEQ ID NO:1879, SEQ ID NO:1883, SEQ ID NO:1888, SEQ ID NO:1897, SEQ ID NO:1902, SEQ ID NO:1915, SEQ ID NO:1920, SEQ ID NO:1925, and SEQ ID NO:1930.

13. The protein of Claim 12, wherein said nucleic acid molecule comprises a nucleic acid sequence that is at least about 70% identical to a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:4, SEQ ID NO:7, SEQ ID NO:10, SEQ ID NO:13, SEQ ID NO:16, SEQ ID NO:19, SEQ ID NO:22, SEQ ID NO:25, SEQ ID NO:28, SEQ ID NO:31, SEQ ID NO:34, SEQ ID NO:37, SEQ ID NO:40, SEQ ID NO:43, SEQ ID NO:46, SEQ ID NO:153, SEQ ID NO:156, SEQ ID NO:159, SEQ ID NO:162, SEQ ID NO:165, SEQ ID NO:168, SEQ ID NO:1859, SEQ ID NO:1861, SEQ ID NO:1864, SEQ ID NO:1867, SEQ ID NO:1870, SEQ ID

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NO:1872, SEQ ID NO:1875, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1881,
SEQ ID NO:1882, SEQ ID NO:1885, SEQ ID NO:1887, SEQ ID NO:1890, SEQ ID
NO:1892, SEQ ID NO:1894, SEQ ID NO:1896, SEQ ID NO:1899, SEQ ID NO:1901,
SEQ ID NO:1904, SEQ ID NO:1906, SEQ ID NO:1908, SEQ ID NO:1910, SEQ ID
5 NO:1912, SEQ ID NO:1914, SEQ ID NO:1917, SEQ ID NO:1919, SEQ ID NO:1922,
SEQ ID NO:1924, SEQ ID NO:1927, and SEQ ID NO:1929.

14. The protein of Claim 12, wherein said nucleic acid molecule is selected
from the group consisting of: a nucleic acid molecule comprising a nucleic acid
sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:4, SEQ ID
10 NO:7, SEQ ID NO:10, SEQ ID NO:13, SEQ ID NO:16, SEQ ID NO:19, SEQ ID
NO:22, SEQ ID NO:25, SEQ ID NO:28, SEQ ID NO:31, SEQ ID NO:34, SEQ ID
NO:37, SEQ ID NO:40, SEQ ID NO:43, SEQ ID NO:46, SEQ ID NO:153, SEQ ID
NO:156, SEQ ID NO:159, SEQ ID NO:162, SEQ ID NO:165, SEQ ID NO:168, SEQ ID
NO:1859, SEQ ID NO:1861, SEQ ID NO:1864, SEQ ID NO:1867, SEQ ID NO:1870,
15 SEQ ID NO:1872, SEQ ID NO:1875, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID
NO:1881, SEQ ID NO:1882, SEQ ID NO:1885, SEQ ID NO:1887, SEQ ID NO:1890,
SEQ ID NO:1892, SEQ ID NO:1894, SEQ ID NO:1896, SEQ ID NO:1899, SEQ ID
NO:1901, SEQ ID NO:1904, SEQ ID NO:1906, SEQ ID NO:1908, SEQ ID NO:1910,
SEQ ID NO:1912, SEQ ID NO:1914, SEQ ID NO:1917, SEQ ID NO:1919, SEQ ID
20 NO:1922, SEQ ID NO:1924, SEQ ID NO:1927, and SEQ ID NO:1929; and a nucleic
acid molecule comprising an allelic variant of a nucleic acid molecule selected from the
group consisting of SEQ ID NO:1, SEQ ID NO:4, SEQ ID NO:7, SEQ ID NO:10, SEQ
ID NO:13, SEQ ID NO:16, SEQ ID NO:19, SEQ ID NO:22, SEQ ID NO:25, SEQ ID
NO:28, SEQ ID NO:31, SEQ ID NO:34, SEQ ID NO:37, SEQ ID NO:40, SEQ ID
25 NO:43, SEQ ID NO:46, SEQ ID NO:153, SEQ ID NO:156, SEQ ID NO:159, SEQ ID
NO:162, SEQ ID NO:165, SEQ ID NO:168, SEQ ID NO:1859, SEQ ID NO:1861, SEQ
ID NO:1864, SEQ ID NO:1867, SEQ ID NO:1870, SEQ ID NO:1872, SEQ ID
NO:1875, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1881, SEQ ID NO:1882,
SEQ ID NO:1885, SEQ ID NO:1887, SEQ ID NO:1890, SEQ ID NO:1892, SEQ ID
30 NO:1894, SEQ ID NO:1896, SEQ ID NO:1899, SEQ ID NO:1901, SEQ ID NO:1904,
SEQ ID NO:1906, SEQ ID NO:1908, SEQ ID NO:1910, SEQ ID NO:1912, SEQ ID

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NO:1914, SEQ ID NO:1917, SEQ ID NO:1919, SEQ ID NO:1922, SEQ ID NO:1924, SEQ ID NO:1927, and SEQ ID NO:1929.

15 15. The protein of Claim 12, wherein said protein comprises an amino acid sequence that is at least about 75% identical to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:20, SEQ ID NO:26, SEQ ID NO:32, SEQ ID NO:38, SEQ ID NO:44, SEQ ID NO:154, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873, SEQ ID NO:1879, SEQ ID NO:1883, SEQ ID NO:1888, SEQ ID NO:1897, SEQ ID NO:1902, SEQ ID NO:1915, SEQ ID NO:1920, SEQ ID NO:1925, and SEQ ID NO:1930.

15 16. The protein of Claim 12, wherein said protein comprises an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:20, SEQ ID NO:26, SEQ ID NO:32, SEQ ID NO:38, SEQ ID NO:44, SEQ ID NO:154, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873, SEQ ID NO:1879, SEQ ID NO:1883, SEQ ID NO:1888, SEQ ID NO:1897, SEQ ID NO:1902, SEQ ID NO:1915, SEQ ID NO:1920, SEQ ID NO:1925, and SEQ ID NO:1930.

17. An isolated antibody that selectively binds to a protein as set forth in Claim 12.

20 18. A method to identify a compound capable of inhibiting activity of an isolated protein of Claim 12, said method comprising contacting an isolated protein of Claim 12 with a putative inhibitory compound under conditions in which, in the absence of said compound, said protein has activity; and determining if said putative inhibitory compound inhibits said activity.

25 19. A kit to identify a compound capable of inhibiting activity of an isolated protein of Claim 12, said test kit comprising an isolated protein of Claim 12 and a means for determining the extent of inhibition of said activity in the presence of a putative inhibitory compound.

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20. A composition comprising an excipient and a compound selected from the group consisting of: (a) an isolated nucleic acid molecule that hybridizes to a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:153, SEQ ID NO:155, SEQ ID NO:156, SEQ ID NO:158, SEQ ID NO:159, SEQ ID NO:161, SEQ ID NO:162, SEQ ID NO:164, SEQ ID NO:165, SEQ ID NO:167, SEQ ID NO:168, SEQ ID NO:170, SEQ ID NO:1859, SEQ ID NO:1860, SEQ ID NO:1861, SEQ ID NO:1863, SEQ ID NO:1864, SEQ ID NO:1866, SEQ ID NO:1867, SEQ ID NO:1869, SEQ ID NO:1870, SEQ ID NO:1871, SEQ ID NO:1872, SEQ ID NO:1874, SEQ ID NO:1875, SEQ ID NO:1876, SEQ ID NO:1877, SEQ ID NO:1878, SEQ ID NO:1880, SEQ ID NO:1881, SEQ ID NO:1882, SEQ ID NO:1884, SEQ ID NO:1885, SEQ ID NO:1886, SEQ ID NO:1887, SEQ ID NO:1889, SEQ ID NO:1890, SEQ ID NO:1891, SEQ ID NO:1892, SEQ ID NO:1893, SEQ ID NO:1894, SEQ ID NO:1895, SEQ ID NO:1896, SEQ ID NO:1898, SEQ ID NO:1899, SEQ ID NO:1900, SEQ ID NO:1901, SEQ ID NO:1903, SEQ ID NO:1904, SEQ ID NO:1905, SEQ ID NO:1906, SEQ ID NO:1907, SEQ ID NO:1908, SEQ ID NO:1909, SEQ ID NO:1910, SEQ ID NO:1911, SEQ ID NO:1912, SEQ ID NO:1913, SEQ ID NO:1914, SEQ ID NO:1916, SEQ ID NO:1917, SEQ ID NO:1918, SEQ ID NO:1919, SEQ ID NO:1921, SEQ ID NO:1922, SEQ ID NO:1923, SEQ ID NO:1924, SEQ ID NO:1926, SEQ ID NO:1927, SEQ ID NO:1928, SEQ ID NO:1929, and SEQ ID NO:1931, under conditions comprising (1) hybridizing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 37°C and (2) washing in a solution comprising 1X SSC and 0% formamide, at a temperature of about 47.5°C; (b) an isolated protein encoded by a nucleic acid molecule that hybridizes to a nucleic acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:6, SEQ ID NO:9, SEQ ID NO:12, SEQ ID NO:15, SEQ ID NO:18, SEQ ID NO:21, SEQ ID NO:24, SEQ ID NO:27, SEQ ID NO:30, SEQ ID NO:33, SEQ ID NO:36, SEQ

-185-

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21. The composition of Claim 20, wherein said composition further comprises a component selected from the group consisting of an adjuvant and a carrier.

22. A method to protect an animal, said method comprising administering to said animal a composition of Claim 20.

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23. An isolated nucleic acid molecule expressed by a tissue selected from the group consisting of a flea HMT tissue and a flea HNC tissue, identified by a method comprising: (a) constructing a cDNA library enriched for HMT or HNC expressed sequences; and (b) identifying a nucleic acid molecule in said library.

5 24. The nucleic acid molecule of Claim 23, wherein said nucleic acid molecule encodes a protein selected from the group consisting of SEQ ID NO:2, SEQ ID NO:8, SEQ ID NO:14, SEQ ID NO:20, SEQ ID NO:26, SEQ ID NO:32, SEQ ID NO:38, SEQ ID NO:44, SEQ ID NO:154, SEQ ID NO:160, SEQ ID NO:163, SEQ ID NO:169, SEQ ID NO:1862, SEQ ID NO:1868, SEQ ID NO:1873, SEQ ID NO:1879,
10 SEQ ID NO:1883, SEQ ID NO:1888, SEQ ID NO:1897, SEQ ID NO:1902, SEQ ID NO:1915, SEQ ID NO:1920, SEQ ID NO:1925, SEQ ID NO:1930, and a protein encoded by a nucleic acid sequence selected from the group consisting of a nucleic acid sequence of Table I, a nucleic acid sequence of Table II, a nucleic acid sequence of Table III, and a nucleic acid sequence of Table IV.

15 25. An isolated antibody that selectively binds to a protein as set forth in Claim 24.

26. The nucleic acid molecule of Claim 23, wherein said nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of a nucleic acid sequence of Table I, a nucleic acid sequence of Table II, a nucleic acid
20 sequence of Table III, and a nucleic acid sequence of Table IV.

SEQUENCE LISTING

<110> Brandt, Kevin S.
Gaines, Patrick J.
Stinchcomb, Dan T.
Wisnewski, Nancy

<120> FLEA HEAD, NERVE CORD, HINDGUT AND MALPIGHIAN TUBULE
NUCLEIC ACID MOLECULES, PROTEINS AND USES THEREOF

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gaa gaa agt aat caa gaa aaa tta tgg caa gct ttg gaa aac aga gat 1008
 Glu Glu Ser Asn Gln Glu Lys Leu Trp Gln Ala Leu Glu Asn Arg Asp
 325 330 335

att gat atg gta gtc agt gat cat tct cca tca cct gct gca ctg aaa 1056
 Ile Asp Met Val Val Ser Asp His Ser Pro Ser Pro Ala Ala Leu Lys
 340 345 350

ggc ctg tgc aat ggt tgt cat cct gat ttc cta aaa gct tgg ggt gga 1104
 Gly Leu Cys Asn Gly Cys His Pro Asp Phe Leu Lys Ala Trp Gly Gly
 355 360 365

att gct ggt atg cag ttt gga tta tct tta ata agg gac cgg tgc ttc 1152
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 370 375 380

<210> 5

<211> 384

<212> PRT

<213> Ctenocephalides felis

<400> 5

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 1 5 10 15

Lys Asn Leu Val Asn Ala Ala Cys Thr Asn Asn Ala Pro Pro Met Lys
 20 25 30

Ile Phe Arg Ser Arg Arg Val Leu Leu Gly Asp Gly Thr Glu Arg Asp
 35 40 45

Ala Gly Ile Val Val Asp Ser Ser Gly Arg Ile Lys Ser Ile Ile Ser
 50 55 60

Gly Glu Glu Val Glu Arg Ile Ala Asn Glu Thr Lys Val Glu Val Leu
 65 70 75 80

Asp Tyr Gly Gln Phe Ser Ile Trp Pro Gly Val Ile Asp Ser His Val
 85 90 95

His Val Asn Glu Pro Gly Arg Glu Ser Trp Glu Gly Tyr Thr Thr Ala
 100 105 110

Thr Lys Ala Ala Ala Trp Gly Gly Ile Thr Thr Ile Val Asp Met Pro
 115 120 125

Leu Asn Ser Ile Pro Pro Thr Thr Thr Val Glu Asn Leu Arg Thr Lys
 130 135 140

Val Asn Ser Ala Cys Gly Lys Thr His Val Asp Val Ala Phe Trp Gly
 145 150 155 160

Gly Val Ile Pro Gly Asn Ala His Glu Leu Leu Pro Leu Ile Asn Ala
 165 170 175

Gly Val Arg Gly Phe Lys Cys Phe Thr Ser Glu Ser Gly Val Asp Glu
 180 185 190
 Phe Pro Gln Val Thr Lys Asn Asp Leu Glu Met Ala Leu Lys Glu Leu
 195 200 205
 Gln Lys Ala Asn Ser Val Leu Leu Tyr His Ala Glu Leu Pro Ala Pro
 210 215 220
 Gln Glu Asn Val Thr Ser Asn Glu Thr Glu Lys Tyr Met Thr Tyr Leu
 225 230 235 240
 Lys Thr Arg Pro Pro Ser Met Glu Val Asn Ala Ile Asp Met Ile Ile
 245 250 255
 Asp Leu Thr Lys Lys Tyr Lys Val Arg Ser His Ile Val His Leu Ser
 260 265 270
 Ala Ala Gly Ala Leu Pro Gln Leu Lys Lys Ala Arg Ser Glu Asn Val
 275 280 285
 Pro Leu Ser Ile Glu Thr Cys His His Tyr Leu Thr Phe Ala Ala Glu
 290 295 300
 Asp Val Pro Asp Gly His Thr Glu Tyr Lys Cys Ala Pro Pro Ile Arg
 305 310 315 320
 Glu Glu Ser Asn Gln Glu Lys Leu Trp Gln Ala Leu Glu Asn Arg Asp
 325 330 335
 Ile Asp Met Val Val Ser Asp His Ser Pro Ser Pro Ala Ala Leu Lys
 340 345 350
 Gly Leu Cys Asn Gly Cys His Pro Asp Phe Leu Lys Ala Trp Gly Gly
 355 360 365
 Ile Ala Gly Met Gln Phe Gly Leu Ser Leu Ile Arg Asp Arg Cys Phe
 370 375 380

<210> 6

<211> 1152

<212> DNA

<213> Ctenocephalides felis

<400> 6

gaagcaccgg tcccttatta aagataatcc aaactgcata ccagcaattc caccccaagc 60

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atgatcactg actaccatat caatatctct gttttccaaa gcttgccata atttttcttg 180
attactttct tctctaattg gtggagcgca tttgtattca gtatgtccat ctggaacatc 240
ttcagcagca aagggttaagt aatgatgaca agtttcaatc gaaagtggaa cgttctctga 300
gcgcgctttt ttcaattgcg gtaaagcacc tgctgctgat agatgcacta tgtgagacct 360
aactttatat ttttttgtga ggtctataat catatcaata gcatttactt ccatacttgg 420
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aaaacatttg aatcctctta ctccggcggt gataagtggc aacaattcgt gcgcattgcc 660
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ttttgttctc aaattctcta cagtagttgt aggtgggatg gaattcaaag gcatgtctac 780
tattgtggtg atcccgcccc aagctgctgc tttagtagct gtggtgtatc cttcccagga 840
ttctcttctc ggttcgttga cgtgcacatg agagtctatc acacctggcc atattgaaaa 900
ttgaccgtag tccaacacct caactttagt ttcgttagct atcctttcca cttcttctcc 960
tgaaattata ctttttattc ttccggagga atcaactaca atgccagcat ctctttcagt 1020
accatcaccg agaagaactc ttccgctacg gaatatcttc attggaggcg cgttggtggt 1080
gcacgcagca ttaacaaggt tcttgcaatt cagcataatg accagaagaa aaatacaggt 1140
actgcttttc at 1152

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<210> 7

<211> 1128

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (6)..(821)

<400> 7

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tcaca atg aag ttc tta gga gct tta ttg gtt gca gtg ttt gcc ttg ggt 50
Met Lys Phe Leu Gly Ala Leu Leu Val Ala Val Phe Ala Leu Gly
      1             5             10            15

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gct gtg gct gct gac agg aat tcg ccc aca tat gtc cgc ggt ttc cca 98
Ala Val Ala Ala Asp Arg Asn Ser Pro Thr Tyr Val Arg Gly Phe Pro
      20             25             30

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gtg gga aga tcc aga gca cga aca aca ttt ggc aat gaa gaa ata aag 146
Val Gly Arg Ser Arg Ala Arg Thr Thr Phe Gly Asn Glu Glu Ile Lys
      35             40             45

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tgt act aat aag cag ttg gga aca ttt tgt cac gat tgt tct act ttg 194
Cys Thr Asn Lys Gln Leu Gly Thr Phe Cys His Asp Cys Ser Thr Leu
      50             55             60

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aag ttg tgc gct gga caa gaa acc cca att aca aca atc aat tgc aga 242

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Lys	Leu	Cys	Ala	Gly	Gln	Glu	Thr	Pro	Ile	Thr	Thr	Ile	Asn	Cys	Arg	
65						70						75				
gac tca aat tcc gat gct cca ttt tgt gta gat gat atg tgc tca tca																290
Asp	Ser	Asn	Ser	Asp	Ala	Pro	Phe	Cys	Val	Asp	Asp	Met	Cys	Ser	Ser	
80					85					90					95	
aaa cct ggg gaa aac tgt aag acg gca gaa act aca tgc gcc gtt gta																338
Lys	Pro	Gly	Glu	Asn	Cys	Lys	Thr	Ala	Glu	Thr	Thr	Cys	Ala	Val	Val	
				100					105					110		
gga tat cag cca gat ccg aaa gac tgc aca aga tac tta ttc tgc aaa																386
Gly	Tyr	Gln	Pro	Asp	Pro	Lys	Asp	Cys	Thr	Arg	Tyr	Leu	Phe	Cys	Lys	
			115					120					125			
gat ggt aaa ggt cag gtt ttc gaa tgc cca cct aac tat gta tat gat																434
Asp	Gly	Lys	Gly	Gln	Val	Phe	Glu	Cys	Pro	Pro	Asn	Tyr	Val	Tyr	Asp	
	130						135					140				
cat tct aaa aat atg tgt aaa aag aaa tcg tca gaa gct gat tgc acc																482
His	Ser	Lys	Asn	Met	Cys	Lys	Lys	Lys	Ser	Ser	Glu	Ala	Asp	Cys	Thr	
	145					150					155					
gtc atg aaa tgc aca aat ccc aat tct ttt ata acc tat gca ccg gac																530
Val	Met	Lys	Cys	Thr	Asn	Pro	Asn	Ser	Phe	Ile	Thr	Tyr	Ala	Pro	Asp	
160					165					170				175		
cca tca att tat gct tgg tgc aat gac aaa ttg caa ccg atc gta ctg																578
Pro	Ser	Ile	Tyr	Ala	Trp	Cys	Asn	Asp	Lys	Leu	Gln	Pro	Ile	Val	Leu	
				180					185					190		
aaa tgt gaa gac gac gtc aac gaa tgg ttt gac cca aaa tct ttc tcg																626
Lys	Cys	Glu	Asp	Asp	Val	Asn	Glu	Trp	Phe	Asp	Pro	Lys	Ser	Phe	Ser	
			195					200					205			
tgc aga act gca tgc aaa agt gaa aac gtt ttt tcc gat cga aga gat																674
Cys	Arg	Thr	Ala	Cys	Lys	Ser	Glu	Asn	Val	Phe	Ser	Asp	Arg	Arg	Asp	
	210						215					220				
tgt aaa aaa tat tat caa tgt ttc ttg gtt aac aac aaa tgg caa ata																722
Cys	Lys	Lys	Tyr	Tyr	Gln	Cys	Phe	Leu	Val	Asn	Asn	Lys	Trp	Gln	Ile	
	225					230					235					
aaa cat tat gat tgt cca aat ggc ttg cac ttt gat aaa acg gag ttg																770
Lys	His	Tyr	Asp	Cys	Pro	Asn	Gly	Leu	His	Phe	Asp	Lys	Thr	Glu	Leu	
240					245					250				255		
cga tgc ata ccc acg cca ccc ggc gaa gaa tgc aaa agt gag att gct																818

Arg Cys Ile Pro Thr Pro Pro Gly Glu Glu Cys Lys Ser Glu Ile Ala
 260 265 270

aag taaggcttaa accaggaaaa caatcttgaa tagactaatt aggattcaaa 871
 Lys
 ttatcataaa gtagtcaatt aatataataa atacacaaat gatctgtgca attaaatata 931
 aaaaatatgt ttaaaaatta aaatgtataa aattgtattt tatgtaagga gcacaaacaa 991
 aatgtcctta actatagtaa tttctgatta tttaaatat ataaatatag aagctttatg 1051
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 aaaaaaaaaa aaaaaaa 1128

<210> 8

<211> 272

<212> PRT

<213> Ctenocephalides felis

<400> 8

Met Lys Phe Leu Gly Ala Leu Leu Val Ala Val Phe Ala Leu Gly Ala
 1 5 10 15

Val Ala Ala Asp Arg Asn Ser Pro Thr Tyr Val Arg Gly Phe Pro Val
 20 25 30

Gly Arg Ser Arg Ala Arg Thr Thr Phe Gly Asn Glu Glu Ile Lys Cys
 35 40 45

Thr Asn Lys Gln Leu Gly Thr Phe Cys His Asp Cys Ser Thr Leu Lys
 50 55 60

Leu Cys Ala Gly Gln Glu Thr Pro Ile Thr Thr Ile Asn Cys Arg Asp
 65 70 75 80

Ser Asn Ser Asp Ala Pro Phe Cys Val Asp Asp Met Cys Ser Ser Lys
 85 90 95

Pro Gly Glu Asn Cys Lys Thr Ala Glu Thr Thr Cys Ala Val Val Gly
 100 105 110

Tyr Gln Pro Asp Pro Lys Asp Cys Thr Arg Tyr Leu Phe Cys Lys Asp
 115 120 125

Gly Lys Gly Gln Val Phe Glu Cys Pro Pro Asn Tyr Val Tyr Asp His

130 135 140
 Ser Lys Asn Met Cys Lys Lys Lys Ser Ser Glu Ala Asp Cys Thr Val
 145 150 155 160
 Met Lys Cys Thr Asn Pro Asn Ser Phe Ile Thr Tyr Ala Pro Asp Pro
 165 170 175
 Ser Ile Tyr Ala Trp Cys Asn Asp Lys Leu Gln Pro Ile Val Leu Lys
 180 185 190
 Cys Glu Asp Asp Val Asn Glu Trp Phe Asp Pro Lys Ser Phe Ser Cys
 195 200 205
 Arg Thr Ala Cys Lys Ser Glu Asn Val Phe Ser Asp Arg Arg Asp Cys
 210 215 220
 Lys Lys Tyr Tyr Gln Cys Phe Leu Val Asn Asn Lys Trp Gln Ile Lys
 225 230 235 240
 His Tyr Asp Cys Pro Asn Gly Leu His Phe Asp Lys Thr Glu Leu Arg
 245 250 255
 Cys Ile Pro Thr Pro Pro Gly Glu Glu Cys Lys Ser Glu Ile Ala Lys
 260 265 270

<210> 9

<211> 1128

<212> DNA

<213> Ctenocephalides felis

<400> 9

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 ctatagttaa ggacattttg tttgtgctcc ttacataaaa tacaatttta tacattttta 180
 tttttaaaca tattttttat atttaattgc acagatcatt tgtgtattta ttatattaat 240
 tgactacttt atgataattt gaatcctaatt tagtctattc aagattgttt tcctggttta 300
 agccttactt agcaatctca cttttgcatt ctgcgcggg tggcgtgggt atgcatcgca 360
 actccgtttt atcaaagtgc aagccatttg gacaatcata atgttttatt tgccatttgt 420
 tgtaaaccaa gaaacattga taatattttt tacaatctct tcgatcgga aaaacgtttt 480
 cacttttgca tgcagttctg cagagaaag attttgggtc aaaccattcg ttgacgtcgt 540
 cttcacattt cagtacgatc ggttgcaatt tgtcattgca ccaagcataa attgatgggt 600
 ccggtgcata ggtataaaaa gaattgggat ttgtgcattt catgacggtg caatcagctt 660
 ctgacgattt ctttttacac atatttttag aatgatcata tacatagtta ggtgggcatt 720
 cgaaaacctg acctttacca tctttgcaga ataagtatct tgtgcagtct ttcgatctg 780
 gctgatatcc tacaacggcg catgtagttt ctgccgtctt acagttttcc ccaggttttg 840


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atgagcacat atcatctaca caaaatggag catcggaatt tgagtctctg caattgattg 900
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ttcccaactg cttattagta cactttatctt cattattgcc aaatgttggt cgtgctctgg 1020
atcttccac tgggaaaccg cggacatatg tgggcgaatt cctgtcagca gccacagcac 1080
ccaaggcaaa cactgcaacc aataaagctc ctaagaactt cattgtga 1128

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<210> 10

<211> 816

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (1)..(816)

<400> 10

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Met Lys Phe Leu Gly Ala Leu Leu Val Ala Val Phe Ala Leu Gly Ala
  1             5             10            15

gtg gct gct gac agg aat tcg ccc aca tat gtc cgc ggt ttc cca gtg 96
Val Ala Ala Asp Arg Asn Ser Pro Thr Tyr Val Arg Gly Phe Pro Val
      20             25            30

gga aga tcc aga gca cga aca aca ttt ggc aat gaa gaa ata aag tgt 144
Gly Arg Ser Arg Ala Arg Thr Thr Phe Gly Asn Glu Glu Ile Lys Cys
      35             40            45

act aat aag cag ttg gga aca ttt tgt cac gat tgt tct act ttg aag 192
Thr Asn Lys Gln Leu Gly Thr Phe Cys His Asp Cys Ser Thr Leu Lys
      50             55            60

ttg tgc gct gga caa gaa acc cca att aca aca atc aat tgc aga gac 240
Leu Cys Ala Gly Gln Glu Thr Pro Ile Thr Thr Ile Asn Cys Arg Asp
      65             70            75            80

tca aat tcc gat gct cca ttt tgt gta gat gat atg tgc tca tca aaa 288
Ser Asn Ser Asp Ala Pro Phe Cys Val Asp Asp Met Cys Ser Ser Lys
      85             90            95

cct ggg gaa aac tgt aag acg gca gaa act aca tgc gcc gtt gta gga 336
Pro Gly Glu Asn Cys Lys Thr Ala Glu Thr Thr Cys Ala Val Val Gly
      100            105            110

tat cag cca gat ccg aaa gac tgc aca aga tac tta ttc tgc aaa gat 384
Tyr Gln Pro Asp Pro Lys Asp Cys Thr Arg Tyr Leu Phe Cys Lys Asp
      115            120            125

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ggt aaa ggt cag gtt ttc gaa tgc cca cct aac tat gta tat gat cat 432
 Gly Lys Gly Gln Val Phe Glu Cys Pro Pro Asn Tyr Val Tyr Asp His
 130 135 140

tct aaa aat atg tgt aaa aag aaa tcg tca gaa gct gat tgc acc gtc 480
 Ser Lys Asn Met Cys Lys Lys Ser Ser Glu Ala Asp Cys Thr Val
 145 150 155 160

atg aaa tgc aca aat ccc aat tct ttt ata acc tat gca ccg gac cca 528
 Met Lys Cys Thr Asn Pro Asn Ser Phe Ile Thr Tyr Ala Pro Asp Pro
 165 170 175

tca att tat gct tgg tgc aat gac aaa ttg caa ccg atc gta ctg aaa 576
 Ser Ile Tyr Ala Trp Cys Asn Asp Lys Leu Gln Pro Ile Val Leu Lys
 180 185 190

tgt gaa gac gac gtc aac gaa tgg ttt gac cca aaa tct ttc tcg tgc 624
 Cys Glu Asp Asp Val Asn Glu Trp Phe Asp Pro Lys Ser Phe Ser Cys
 195 200 205

aga act gca tgc aaa agt gaa aac gtt ttt tcc gat cga aga gat tgt 672
 Arg Thr Ala Cys Lys Ser Glu Asn Val Phe Ser Asp Arg Arg Asp Cys
 210 215 220

aaa aaa tat tat caa tgt ttc ttg gtt aac aac aaa tgg caa ata aaa 720
 Lys Lys Tyr Tyr Gln Cys Phe Leu Val Asn Asn Lys Trp Gln Ile Lys
 225 230 235 240

cat tat gat tgt cca aat ggc ttg cac ttt gat aaa acg gag ttg cga 768
 His Tyr Asp Cys Pro Asn Gly Leu His Phe Asp Lys Thr Glu Leu Arg
 245 250 255

tgc ata ccc acg cca ccc ggc gaa gaa tgc aaa agt gag att gct aag 816
 Cys Ile Pro Thr Pro Pro Gly Glu Glu Cys Lys Ser Glu Ile Ala Lys
 260 265 270

<210> 11

<211> 272

<212> PRT

<213> Ctenocephalides felis

<400> 11

Met Lys Phe Leu Gly Ala Leu Leu Val Ala Val Phe Ala Leu Gly Ala
 1 5 10 15

Val Ala Ala Asp Arg Asn Ser Pro Thr Tyr Val Arg Gly Phe Pro Val

	20		25		30														
Gly	Arg	Ser	Arg	Ala	Arg	Thr	Thr	Phe	Gly	Asn	Glu	Glu	Ile	Lys	Cys				
	35						40					45							
Thr	Asn	Lys	Gln	Leu	Gly	Thr	Phe	Cys	His	Asp	Cys	Ser	Thr	Leu	Lys				
	50					55					60								
Leu	Cys	Ala	Gly	Gln	Glu	Thr	Pro	Ile	Thr	Thr	Ile	Asn	Cys	Arg	Asp				
	65				70				75						80				
Ser	Asn	Ser	Asp	Ala	Pro	Phe	Cys	Val	Asp	Asp	Met	Cys	Ser	Ser	Lys				
				85					90					95					
Pro	Gly	Glu	Asn	Cys	Lys	Thr	Ala	Glu	Thr	Thr	Cys	Ala	Val	Val	Gly				
			100					105					110						
Tyr	Gln	Pro	Asp	Pro	Lys	Asp	Cys	Thr	Arg	Tyr	Leu	Phe	Cys	Lys	Asp				
	115						120					125							
Gly	Lys	Gly	Gln	Val	Phe	Glu	Cys	Pro	Pro	Asn	Tyr	Val	Tyr	Asp	His				
	130					135					140								
Ser	Lys	Asn	Met	Cys	Lys	Lys	Lys	Ser	Ser	Glu	Ala	Asp	Cys	Thr	Val				
	145				150					155					160				
Met	Lys	Cys	Thr	Asn	Pro	Asn	Ser	Phe	Ile	Thr	Tyr	Ala	Pro	Asp	Pro				
				165					170					175					
Ser	Ile	Tyr	Ala	Trp	Cys	Asn	Asp	Lys	Leu	Gln	Pro	Ile	Val	Leu	Lys				
			180					185					190						
Cys	Glu	Asp	Asp	Val	Asn	Glu	Trp	Phe	Asp	Pro	Lys	Ser	Phe	Ser	Cys				
	195						200					205							
Arg	Thr	Ala	Cys	Lys	Ser	Glu	Asn	Val	Phe	Ser	Asp	Arg	Arg	Asp	Cys				
	210					215					220								
Lys	Lys	Tyr	Tyr	Gln	Cys	Phe	Leu	Val	Asn	Asn	Lys	Trp	Gln	Ile	Lys				
	225				230					235				240					
His	Tyr	Asp	Cys	Pro	Asn	Gly	Leu	His	Phe	Asp	Lys	Thr	Glu	Leu	Arg				
				245					250					255					
Cys	Ile	Pro	Thr	Pro	Pro	Gly	Glu	Glu	Cys	Lys	Ser	Glu	Ile	Ala	Lys				
			260				265						270						

<210> 12
 <211> 816
 <212> DNA
 <213> Ctenocephalides felis

<400> 12
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 tttatcaaag tgcaagccat ttggacaatc ataatgtttt atttgccatt tgttggttaac 120
 caagaaacat tgataatatt ttttacaatc tcttcgatcg gaaaaaacgt tttcactttt 180
 gcatgcagtt ctgcacgaga aagatttttg gtcaaaccat tcggttgacgt cgtcttcaca 240
 tttcagtacg atcgggttgca atttgtcatt gcaccaagca taaattgatg ggtccgggtgc 300
 ataggttata aaagaattgg gatttgtgca tttcatgacg gtgcaatcag cttctgacga 360
 tttcttttta cacatatatt tagaatgatc atatacatag ttaggtgggc attcgaaaac 420
 ctgaccttta ccatctttgc agaataagta tcttgtgcag tctttcggat ctggctgata 480
 tcctacaacg gcgcatgtag tttctgccgt cttacagttt tccccagggt ttgatgagca 540
 catatcatct acacaaaatg gagcatcgga atttgagtct ctgcaattga ttgttgtaat 600
 tgggggtttct tgtccagcgc acaacttcaa agtagaaca tcgtgacaaa atgttcccaa 660
 ctgcttatta gtacacttta tttcttcatt gccaaatgtt gttcgtgctc tggatcttcc 720
 cactgggaaa ccgcgacat atgtgggcga attcctgtca gcagccacag cacccaaggc 780
 aaacactgca accaataaag ctctaaagaa cttcat 816

<210> 13
 <211> 1714
 <212> DNA
 <213> Ctenocephalides felis

<220>
 <221> CDS
 <222> (294)..(1271)

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 attcagtga ctaaacaat ttccttacc agaatacaac ataagaacta acgatttgaa 180
 ctgtttataa ttcataatat aaccgcatct tttatttcta attttatctt ttagtgaata 240
 aatttatttg ttgttgaaata aattaataat tgtgtacgtt caatttggtc gtg atg 296
 Met
 1
 gag aaa ata gtt gga cgc gat gga aca gaa gtc atc aca tac gag ttt 344
 Glu Lys Ile Val Gly Arg Asp Gly Thr Glu Val Ile Thr Tyr Glu Phe
 5 10 15

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cca tat atg agg aga gcg gat aag cgg act aac tgg gaa aag ttc cgg 392
Pro Tyr Met Arg Arg Ala Asp Lys Arg Thr Asn Trp Glu Lys Phe Arg
      20              25              30

cag gga tgc tac aat ccg gac gag ggc agt ttt ttg ggc agg caa cca 440
Gln Gly Cys Tyr Asn Pro Asp Glu Gly Ser Phe Leu Gly Arg Gln Pro
      35              40              45

tca gca tgg gct cgc gta tcg cta ttt tac ttg gta ttc tac aca gtt 488
Ser Ala Trp Ala Arg Val Ser Leu Phe Tyr Leu Val Phe Tyr Thr Val
      50              55              60              65

ttg gca tcc cta ttc aca ata tgc atg tac aca atg cta tct acg ata 536
Leu Ala Ser Leu Phe Thr Ile Cys Met Tyr Thr Met Leu Ser Thr Ile
              70              75              80

gac aag gaa tac cca aaa tgg cag ctt gag gat tca ata ata gga act 584
Asp Lys Glu Tyr Pro Lys Trp Gln Leu Glu Asp Ser Ile Ile Gly Thr
              85              90              95

aat cct gga ctg gga ttt agg cca ata gca gat aac aca gaa gag gga 632
Asn Pro Gly Leu Gly Phe Arg Pro Ile Ala Asp Asn Thr Glu Glu Gly
      100              105              110

tct cta ata tgg ttc gac gcc aaa aat gaa act gaa gtt gcg aaa tgg 680
Ser Leu Ile Trp Phe Asp Ala Lys Asn Glu Thr Glu Val Ala Lys Trp
      115              120              125

aca aca ata att gac gaa ttt tta gct cct tac aaa aat cgg tct caa 728
Thr Thr Ile Ile Asp Glu Phe Leu Ala Pro Tyr Lys Asn Arg Ser Gln
      130              135              140              145

ttg cca agc cac ggt gaa aat caa atg ttc tgc gac tac gaa acg ggg 776
Leu Pro Ser His Gly Glu Asn Gln Met Phe Cys Asp Tyr Glu Thr Gly
              150              155              160

ccc aac act gca aat cgt gtt tgt gcc gta gcc gtc gag aag tgg ggc 824
Pro Asn Thr Ala Asn Arg Val Cys Ala Val Ala Val Glu Lys Trp Gly
              165              170              175

tca tgc aca tca cag gct aac tac ggc ttt gga caa tcc gca cct tgt 872
Ser Cys Thr Ser Gln Ala Asn Tyr Gly Phe Gly Gln Ser Ala Pro Cys
      180              185              190

gtc ttt ctt aag ctt aac agg ata tat aat tgg gta cca gat tat tat 920
Val Phe Leu Lys Leu Asn Arg Ile Tyr Asn Trp Val Pro Asp Tyr Tyr
      195              200              205

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gat gat gtg gcg acg ctg cct gaa gat atg cct atg gaa ttg aag gat 968
Asp Asp Val Ala Thr Leu Pro Glu Asp Met Pro Met Glu Leu Lys Asp
210 215 220 225

cac ata caa agt ctc aag ccg gat gag aga aaa caa att tgg gtt tcg 1016
His Ile Gln Ser Leu Lys Pro Asp Glu Arg Lys Gln Ile Trp Val Ser
230 235 240

tgt caa gga gaa aat cca gtt gat cga gaa aat ttg ggc cca gtt gaa 1064
Cys Gln Gly Glu Asn Pro Val Asp Arg Glu Asn Leu Gly Pro Val Glu
245 250 255

atg tat cca agc atg gga ttt gct gga tat tat tat cca ttc aga aac 1112
Met Tyr Pro Ser Met Gly Phe Ala Gly Tyr Tyr Tyr Pro Phe Arg Asn
260 265 270

caa cga gat tat ctt agt cca tta gtt gct gtt caa ttc aaa aga cct 1160
Gln Arg Asp Tyr Leu Ser Pro Leu Val Ala Val Gln Phe Lys Arg Pro
275 280 285

aca gtg gga cgt ttg atc aac gtg gaa tgt cgt gcc tgg gcc agg aac 1208
Thr Val Gly Arg Leu Ile Asn Val Glu Cys Arg Ala Trp Ala Arg Asn
290 295 300 305

atc atc tat cgt ggt ggc aac aag gat cga caa gga tcc gtc cat ttc 1256
Ile Ile Tyr Arg Gly Gly Asn Lys Asp Arg Gln Gly Ser Val His Phe
310 315 320

gaa ctg atg att gat tagaatcgac attattagt ttaattttac tttattgata 1311
Glu Leu Met Ile Asp
325

tcctaagcat tatcgtttctg tgttatcgcg ccttgtagat cgttgcaaaa tagctcgtag 1371

gtcgtatgttg tgaatagaat ttaagtttta attttaagta tgataattaa tgaagtgttt 1431

aataaatcaa aatgaacttt gagtataata gactttatat ttatatctaa ataaagttta 1491

cgcggttttg ttatcattaa aggtgtaaga ttttaattatt tataattggt tatatattag 1551

ctataaatgt gtaaatatac gttatttaaat atagtacaaa acaagttgat ttatttaagt 1611

cctattgtga aatatgttag tgtagtataa aatgcttata ttttattatg tatttagaaa 1671

atatattaca ttacttatt actttaaaaa aaaaaaaaaaaa aaa 1714

<210> 14

<211> 326

<212> PRT

<213> Ctenocephalides felis

<400> 14

Met Glu Lys Ile Val Gly Arg Asp Gly Thr Glu Val Ile Thr Tyr Glu
 1 5 10 15

Phe Pro Tyr Met Arg Arg Ala Asp Lys Arg Thr Asn Trp Glu Lys Phe
 20 25 30

Arg Gln Gly Cys Tyr Asn Pro Asp Glu Gly Ser Phe Leu Gly Arg Gln
 35 40 45

Pro Ser Ala Trp Ala Arg Val Ser Leu Phe Tyr Leu Val Phe Tyr Thr
 50 55 60

Val Leu Ala Ser Leu Phe Thr Ile Cys Met Tyr Thr Met Leu Ser Thr
 65 70 75 80

Ile Asp Lys Glu Tyr Pro Lys Trp Gln Leu Glu Asp Ser Ile Ile Gly
 85 90 95

Thr Asn Pro Gly Leu Gly Phe Arg Pro Ile Ala Asp Asn Thr Glu Glu
 100 105 110

Gly Ser Leu Ile Trp Phe Asp Ala Lys Asn Glu Thr Glu Val Ala Lys
 115 120 125

Trp Thr Thr Ile Ile Asp Glu Phe Leu Ala Pro Tyr Lys Asn Arg Ser
 130 135 140

Gln Leu Pro Ser His Gly Glu Asn Gln Met Phe Cys Asp Tyr Glu Thr
 145 150 155 160

Gly Pro Asn Thr Ala Asn Arg Val Cys Ala Val Ala Val Glu Lys Trp
 165 170 175

Gly Ser Cys Thr Ser Gln Ala Asn Tyr Gly Phe Gly Gln Ser Ala Pro
 180 185 190

Cys Val Phe Leu Lys Leu Asn Arg Ile Tyr Asn Trp Val Pro Asp Tyr
 195 200 205

Tyr Asp Asp Val Ala Thr Leu Pro Glu Asp Met Pro Met Glu Leu Lys
 210 215 220

Asp His Ile Gln Ser Leu Lys Pro Asp Glu Arg Lys Gln Ile Trp Val
 225 230 235 240

Ser Cys Gln Gly Glu Asn Pro Val Asp Arg Glu Asn Leu Gly Pro Val
 245 250 255

Glu Met Tyr Pro Ser Met Gly Phe Ala Gly Tyr Tyr Tyr Pro Phe Arg
 260 265 270

Asn Gln Arg Asp Tyr Leu Ser Pro Leu Val Ala Val Gln Phe Lys Arg
 275 280 285

Pro Thr Val Gly Arg Leu Ile Asn Val Glu Cys Arg Ala Trp Ala Arg
 290 295 300

Asn Ile Ile Tyr Arg Gly Gly Asn Lys Asp Arg Gln Gly Ser Val His
 305 310 315 320

Phe Glu Leu Met Ile Asp
 325

<210> 15

<211> 1714

<212> DNA

<213> Ctenocephalides felis

<400> 15

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 aaatataagc attttatact acactaacat atttcacaat aggcattaaa taaatcaact 120
 tgttttgtag tatattaaat aacgtatatt tacacattta tagctaatat ataaacaatt 180
 ataatatta aaatcttaca cctttaatga taacaaaacc gcgtaaactt tatttagata 240
 taaatataaa gtctattata ctcaaagttc attttgattt attaaacact tcattaatta 300
 tcatacttaa aattaaaact taaattctat tcacaacatc gacgtacgag ctattttgca 360
 acgatgtaca aggcgcgata acacagaacg ataatgctta ggatatcaat aaagtaaaat 420
 taacactaat aatgtcgatt ctaatcaatc atcagttcga aatggacgga tccttgtaga 480
 tccttgtagc caccacgata gatgatgttc ctggcccagg caccgacattc cacttgtagc 540
 aaacgtccca ctgtaggtct tttgaattga acagcaacta atggactaag ataactctcg 600
 tggtttctga atggataata atatccagca aatcccatgc ttggatacat ttcaactggg 660
 cccaaatttt ctcgatcaac tggattttct ccttgacacg aaaccctaat ttgttttctc 720
 tcatccggct tgagactttg tatgtgatcc ttcaattcca taggcataatc ttcaggcagc 780
 gtcgccacat catcataata atctggtacc caattatata tcctgttaag ctttaagaaag 840
 acacaagggt cggattgtcc aaagccgtag ttgacctgtg atgtgcatga gccccacttc 900
 tcgacggcta cggcacaac acgatttgca gtgttgggcc ccgtttcgta gtcgcagaac 960
 atttgatttt caccgtggct tggcaattga gaccgatttt tgtaaggagc taaaaattcg 1020
 tcaattattg ttgtccattt cgcaacttca gtttcatttt tggcgtcgaa ccatattaga 1080
 gatccctctt ctgtgttatc tgctattggc ctaaatccca gtccaggatt agttcctatt 1140


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attgaatcct caagctgccca ttttgggtat tccttgtcta tcgtagatag cattgtgtac 1200
atgcatattg tgaataggga tgccaaaact gtgtagaata ccaagtaaaa tagcgatacg 1260
cgagcccatg ctgatgggtg cctgccc aaaactgccct cgtccggatt gtagcatccc 1320
tgccggaact tttcccagtt agtccgctta tccgctctcc tcatatatgg aaactcgtat 1380
gtgatgactt ctgttccatc gcgtccaact attttctcca tcacgaacaa attgaacgta 1440
cacaattatt aatttattca acaacaaata aatttattca ctaaaagata aaattagaaa 1500
taaaagatgc gggtatatta tgaattataa acagttcaaa tcgttagttc ttatgttgta 1560
ttctgggtaa ggaaatttgt ttagtttact gaataacatg tgggtagttc aggtagagat 1620
ttgtttcgga tcaactggta taatttgtgt cacggagaaa aatcgtgaag aggccccggg 1680
tgtaaatttg aacgcggcac ccgatacttg cgat 1714

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<210> 16

<211> 978

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (1)..(978)

<400> 16

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atg gag aaa ata gtt gga cgc gat gga aca gaa gtc atc aca tac gag 48
Met Glu Lys Ile Val Gly Arg Asp Gly Thr Glu Val Ile Thr Tyr Glu
  1           5           10          15

ttt cca tat atg agg aga gcg gat aag cgg act aac tgg gaa aag ttc 96
Phe Pro Tyr Met Arg Arg Ala Asp Lys Arg Thr Asn Trp Glu Lys Phe
    20           25           30

cgg cag gga tgc tac aat ccg gac gag ggc agt ttt ttg ggc agg caa 144
Arg Gln Gly Cys Tyr Asn Pro Asp Glu Gly Ser Phe Leu Gly Arg Gln
    35           40           45

cca tca gca tgg gct cgc gta tcg cta ttt tac ttg gta ttc tac aca 192
Pro Ser Ala Trp Ala Arg Val Ser Leu Phe Tyr Leu Val Phe Tyr Thr
    50           55           60

gtt ttg gca tcc cta ttc aca ata tgc atg tac aca atg cta tct acg 240
Val Leu Ala Ser Leu Phe Thr Ile Cys Met Tyr Thr Met Leu Ser Thr
    65           70           75           80

ata gac aag gaa tac cca aaa tgg cag ctt gag gat tca ata ata gga 288
Ile Asp Lys Glu Tyr Pro Lys Trp Gln Leu Glu Asp Ser Ile Ile Gly
    85           90           95

act aat cct gga ctg gga ttt agg cca ata gca gat aac aca gaa gag 336
Thr Asn Pro Gly Leu Gly Phe Arg Pro Ile Ala Asp Asn Thr Glu Glu

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100	105	110	
gga tct cta ata tgg ttc gac gcc aaa aat gaa act gaa gtt gcg aaa			384
Gly Ser Leu Ile Trp Phe Asp Ala Lys Asn Glu Thr Glu Val Ala Lys			
115	120	125	
tgg aca aca ata att gac gaa ttt tta gct cct tac aaa aat cgg tct			432
Trp Thr Thr Ile Ile Asp Glu Phe Leu Ala Pro Tyr Lys Asn Arg Ser			
130	135	140	
caa ttg cca agc cac ggt gaa aat caa atg ttc tgc gac tac gaa acg			480
Gln Leu Pro Ser His Gly Glu Asn Gln Met Phe Cys Asp Tyr Glu Thr			
145	150	155	160
ggg ccc aac act gca aat cgt gtt tgt gcc gta gcc gtc gag aag tgg			528
Gly Pro Asn Thr Ala Asn Arg Val Cys Ala Val Ala Val Glu Lys Trp			
165	170	175	
ggc tca tgc aca tca cag gct aac tac ggc ttt gga caa tcc gca cct			576
Gly Ser Cys Thr Ser Gln Ala Asn Tyr Gly Phe Gly Gln Ser Ala Pro			
180	185	190	
tgt gtc ttt ctt aag ctt aac agg ata tat aat tgg gta cca gat tat			624
Cys Val Phe Leu Lys Leu Asn Arg Ile Tyr Asn Trp Val Pro Asp Tyr			
195	200	205	
tat gat gat gtg gcg acg ctg cct gaa gat atg cct atg gaa ttg aag			672
Tyr Asp Asp Val Ala Thr Leu Pro Glu Asp Met Pro Met Glu Leu Lys			
210	215	220	
gat cac ata caa agt ctc aag ccg gat gag aga aaa caa att tgg gtt			720
Asp His Ile Gln Ser Leu Lys Pro Asp Glu Arg Lys Gln Ile Trp Val			
225	230	235	240
tcg tgt caa gga gaa aat cca gtt gat cga gaa aat ttg ggc cca gtt			768
Ser Cys Gln Gly Glu Asn Pro Val Asp Arg Glu Asn Leu Gly Pro Val			
245	250	255	
gaa atg tat cca agc atg gga ttt gct gga tat tat tat cca ttc aga			816
Glu Met Tyr Pro Ser Met Gly Phe Ala Gly Tyr Tyr Tyr Pro Phe Arg			
260	265	270	
aac caa cga gat tat ctt agt cca tta gtt gct gtt caa ttc aaa aga			864
Asn Gln Arg Asp Tyr Leu Ser Pro Leu Val Ala Val Gln Phe Lys Arg			
275	280	285	
cct aca gtg gga cgt ttg atc aac gtg gaa tgt cgt gcc tgg gcc agg			912
Pro Thr Val Gly Arg Leu Ile Asn Val Glu Cys Arg Ala Trp Ala Arg			

290 295 300

aac atc atc tat cgt ggt ggc aac aag gat cga caa gga tcc gtc cat 960
 Asn Ile Ile Tyr Arg Gly Gly Asn Lys Asp Arg Gln Gly Ser Val His
 305 310 315 320

ttc gaa ctg atg att gat 978
 Phe Glu Leu Met Ile Asp
 325

<210> 17
 <211> 326
 <212> PRT
 <213> Ctenocephalides felis

<400> 17
 Met Glu Lys Ile Val Gly Arg Asp Gly Thr Glu Val Ile Thr Tyr Glu
 1 5 10 15

Phe Pro Tyr Met Arg Arg Ala Asp Lys Arg Thr Asn Trp Glu Lys Phe
 20 25 30

Arg Gln Gly Cys Tyr Asn Pro Asp Glu Gly Ser Phe Leu Gly Arg Gln
 35 40 45

Pro Ser Ala Trp Ala Arg Val Ser Leu Phe Tyr Leu Val Phe Tyr Thr
 50 55 60

Val Leu Ala Ser Leu Phe Thr Ile Cys Met Tyr Thr Met Leu Ser Thr
 65 70 75 80

Ile Asp Lys Glu Tyr Pro Lys Trp Gln Leu Glu Asp Ser Ile Ile Gly
 85 90 95

Thr Asn Pro Gly Leu Gly Phe Arg Pro Ile Ala Asp Asn Thr Glu Glu
 100 105 110

Gly Ser Leu Ile Trp Phe Asp Ala Lys Asn Glu Thr Glu Val Ala Lys
 115 120 125

Trp Thr Thr Ile Ile Asp Glu Phe Leu Ala Pro Tyr Lys Asn Arg Ser
 130 135 140

Gln Leu Pro Ser His Gly Glu Asn Gln Met Phe Cys Asp Tyr Glu Thr
 145 150 155 160

Gly Pro Asn Thr Ala Asn Arg Val Cys Ala Val Ala Val Glu Lys Trp

165 170 175
 Gly Ser Cys Thr Ser Gln Ala Asn Tyr Gly Phe Gly Gln Ser Ala Pro
 180 185 190
 Cys Val Phe Leu Lys Leu Asn Arg Ile Tyr Asn Trp Val Pro Asp Tyr
 195 200 205
 Tyr Asp Asp Val Ala Thr Leu Pro Glu Asp Met Pro Met Glu Leu Lys
 210 215 220
 Asp His Ile Gln Ser Leu Lys Pro Asp Glu Arg Lys Gln Ile Trp Val
 225 230 235 240
 Ser Cys Gln Gly Glu Asn Pro Val Asp Arg Glu Asn Leu Gly Pro Val
 245 250 255
 Glu Met Tyr Pro Ser Met Gly Phe Ala Gly Tyr Tyr Tyr Pro Phe Arg
 260 265 270
 Asn Gln Arg Asp Tyr Leu Ser Pro Leu Val Ala Val Gln Phe Lys Arg
 275 280 285
 Pro Thr Val Gly Arg Leu Ile Asn Val Glu Cys Arg Ala Trp Ala Arg
 290 295 300
 Asn Ile Ile Tyr Arg Gly Gly Asn Lys Asp Arg Gln Gly Ser Val His
 305 310 315 320
 Phe Glu Leu Met Ile Asp
 325

<210> 18

<211> 978

<212> DNA

<213> Ctenocephalides felis

<400> 18

atcaatcatc agttcgaaat ggacggatcc ttgtcgatcc ttgttgccac cacgatagat 60
 gatgttcctg gccagggcac gacattccac gttgatcaaa cgtcccactg taggtctttt 120
 gaattgaaca gcaactaatg gactaagata atctcggttg tttctgaatg gataataata 180
 tccagcaaat cccatgcttg gatacatttc aactggggccc aaattttctc gatcaactgg 240
 attttctcct tgacacgaaa cccaaatttg ttttctctca tccggcttga gactttgtat 300
 gtgacccctc aattccatag gcatactctc aggcagcgtc gccacatcat cataataatc 360
 tggtagccaa ttatatatcc tggttaagctt aagaaagaca caaggtgcgg attgtccaaa 420
 gccgtagtta gcctgtgatg tgcattgagcc ccacttctcg acggctacgg cacaacacg 480

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atttgcagtg ttgggccccg tttcgtagtc gcagaacatt tgattttcac cgtggcttgg 540
caattgagac cgatttttgt aaggagctaa aaattcgtca attattgttg tccatttcgc 600
aacttcagtt tcatttttgg cgtcgaacca tattagagat cctcttctg tgttatctgc 660
tattggccta aatcccagtc caggattagt tcctattatt gaatcctcaa gctgccattt 720
tgggtattcc ttgtctatcg tagatagcat tgtgtacatg catattgtga atagggatgc 780
caaaactgtg tagaatacca agtaaaatag cgatacgcga gcccatgctg atggttgcc 840
gccccaaaaa ctgccctcgt ccggattgta gcatccctgc cggaactttt cccagttagt 900
ccgcttatcc gctctcctca tatatggaaa ctcgatatgtg atgacttctg ttccatcgcg 960
tccaactatt ttctccat 978

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<210> 19

<211> 2240

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (1)..(1707)

<400> 19

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aca att tta aac gca tcc acg acc gtt gaa aaa aat cct gga cat caa 48
Thr Ile Leu Asn Ala Ser Thr Thr Val Glu Lys Asn Pro Gly His Gln
1 5 10 15

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acc agt att tca gaa gaa tct acc aca aaa ttg gta aaa aca acc act 96
Thr Ser Ile Ser Glu Glu Ser Thr Thr Lys Leu Val Lys Thr Thr Thr
20 25 30

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gaa gac aac cac ctc ggt gta aag agc ctg aat gaa cct ggt gat gaa 144
Glu Asp Asn His Leu Gly Val Lys Ser Leu Asn Glu Pro Gly Asp Glu
35 40 45

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caa gaa tta aaa aaa cca tca tca cat ggt aag gag cat att tct tta 192
Gln Glu Leu Lys Lys Pro Ser Ser His Gly Lys Glu His Ile Ser Leu
50 55 60

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cca gtg gct tca cca gta cca cca gta tcg cat atc ttc cag gct aca 240
Pro Val Ala Ser Pro Val Pro Pro Val Ser His Ile Phe Gln Ala Thr
65 70 75 80

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cca gga gac ctt tgt cca gcc ttc gac gat gca gat cgc ttc acc cag 288
Pro Gly Asp Leu Cys Pro Ala Phe Asp Asp Ala Asp Arg Phe Thr Gln
85 90 95

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aca gaa ctt ttg tcc agg ctg aca aac gat tgc agg tac gat aag ctg 336
Thr Glu Leu Leu Ser Arg Leu Thr Asn Asp Cys Arg Tyr Asp Lys Leu
100 105 110

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gag cgc cct ttg ggg cct cac aat ggt gca ggg ccg ctc ccg gtg gcc	384
Glu Arg Pro Leu Gly Pro His Asn Gly Ala Gly Pro Leu Pro Val Ala	
115 120 125	
gcc aga att tac gtg tat ttt ata caa aat acg gac gcg cac gaa ttg	432
Ala Arg Ile Tyr Val Tyr Phe Ile Gln Asn Thr Asp Ala His Glu Leu	
130 135 140	
tca ttt tcc gtg acc gtc ctc ctc caa ttt cgt tac cca gga cgc cag	480
Ser Phe Ser Val Thr Val Leu Leu Gln Phe Arg Tyr Pro Gly Arg Gln	
145 150 155 160	
att ggc cta caa aaa agt ggc acc cac cca gga cgg tca tca tgg gcg	528
Ile Gly Leu Gln Lys Ser Gly Thr His Pro Gly Arg Ser Ser Trp Ala	
165 170 175	
aat cgc agc tca ggg aca aaa tct ggg tac cca cat gta ttc gtt gcc	576
Asn Arg Ser Ser Gly Thr Lys Ser Gly Tyr Pro His Val Phe Val Ala	
180 185 190	
aac gag aga tct tcc cag gtt atg ggc aca gat gcc caa tct aag gac	624
Asn Glu Arg Ser Ser Gln Val Met Gly Thr Asp Ala Gln Ser Lys Asp	
195 200 205	
atg ttg gtg tca gta gct cct gat ggt aca gtc gtc ttt tcg gtc agg	672
Met Leu Val Ser Val Ala Pro Asp Gly Thr Val Val Phe Ser Val Arg	
210 215 220	
atg aag gca act ttg tac tgt tgg atg aat tta agg aaa ttt cct ttt	720
Met Lys Ala Thr Leu Tyr Cys Trp Met Asn Leu Arg Lys Phe Pro Phe	
225 230 235 240	
gat gaa caa cag tgt cag atg atg ttg gaa agt tgg aag tac aat aca	768
Asp Glu Gln Gln Cys Gln Met Met Leu Glu Ser Trp Lys Tyr Asn Thr	
245 250 255	
agt gaa ctc cta ttg act tgg gaa cca act gca cca gta act tta gca	816
Ser Glu Leu Leu Leu Thr Trp Glu Pro Thr Ala Pro Val Thr Leu Ala	
260 265 270	
cca gaa cta cat ttg acc gaa tat gtc ctt act gac atg tgg gta aat	864
Pro Glu Leu His Leu Thr Glu Tyr Val Leu Thr Asp Met Trp Val Asn	
275 280 285	
gaa aca gtt gtc aag gct gat ttg gat gac ctg aga cac gga gca ttt	912
Glu Thr Val Val Lys Ala Asp Leu Asp Asp Leu Arg His Gly Ala Phe	
290 295 300	

ggt ggg aca tac agt gcc tta agt ttc acg att caa ata agt cgt gaa 960
 Gly Gly Thr Tyr Ser Ala Leu Ser Phe Thr Ile Gln Ile Ser Arg Glu
 305 310 315 320

atg ggt tac tat tta atg gat tac ttt ttg cca tca gta atg atc gtg 1008
 Met Gly Tyr Tyr Leu Met Asp Tyr Phe Leu Pro Ser Val Met Ile Val
 325 330 335

tcg tgt tcc tgg gta agt ttt tgg ctg gca gca gac caa tca gca ccc 1056
 Ser Cys Ser Trp Val Ser Phe Trp Leu Ala Ala Asp Gln Ser Ala Pro
 340 345 350

aga gtc acc tta ggt aca agc acc atg tta tca ttt atc act tta gca 1104
 Arg Val Thr Leu Gly Thr Ser Thr Met Leu Ser Phe Ile Thr Leu Ala
 355 360 365

agt gcc caa gga aaa act tta ccc aaa gta tcg tac atc aaa gct tca 1152
 Ser Ala Gln Gly Lys Thr Leu Pro Lys Val Ser Tyr Ile Lys Ala Ser
 370 375 380

gaa atc tgg ttt tta ggt tgc acc ggg ttt att ttt ggg agt tta gtg 1200
 Glu Ile Trp Phe Leu Gly Cys Thr Gly Phe Ile Phe Gly Ser Leu Val
 385 390 395 400

gaa ttc gcg ttt gtc aac aca att tgg aga cga agg aaa aat gtg gaa 1248
 Glu Phe Ala Phe Val Asn Thr Ile Trp Arg Arg Arg Lys Asn Val Glu
 405 410 415

ttg aaa aaa gtc aac agc aag tat att ttg aag tca act ttg acg ccg 1296
 Leu Lys Lys Val Asn Ser Lys Tyr Ile Leu Lys Ser Thr Leu Thr Pro
 420 425 430

agg ttg gcc cgg aag gag ttt cat gct tcg ttt aat tcg aat cct gga 1344
 Arg Leu Ala Arg Lys Glu Phe His Ala Ser Phe Asn Ser Asn Pro Gly
 435 440 445

ggt ggt aat aag gat gat cag gat ttg gga aga ggg att agg gtc ttt 1392
 Gly Gly Asn Lys Asp Asp Gln Asp Leu Gly Arg Gly Ile Arg Val Phe
 450 455 460

ccg ccg cct ttg gtc aag gct agg tct tgt tcc agt ctg gat agg agt 1440
 Pro Pro Pro Leu Val Lys Ala Arg Ser Cys Ser Ser Leu Asp Arg Ser
 465 470 475 480

aat gga tcc ggg aat ttt ttg agc gtc cat gga aat gat cac aaa gtt 1488
 Asn Gly Ser Gly Asn Phe Leu Ser Val His Gly Asn Asp His Lys Val
 485 490 495

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cca aca ata aca gca caa tgt gca gac gat gcc gca agt gac cag att 1536
Pro Thr Ile Thr Ala Gln Cys Ala Asp Asp Ala Ala Ser Asp Gln Ile
      500              505              510

tca gtt tgt gtc gat ggg gaa aac gaa gaa cct gca caa att gtt cac 1584
Ser Val Cys Val Asp Gly Glu Asn Glu Glu Pro Ala Gln Ile Val His
      515              520              525

cac acc tgg acg acg atg aca cct caa gaa att tcc atg tgg att gac 1632
His Thr Trp Thr Thr Met Thr Pro Gln Glu Ile Ser Met Trp Ile Asp
      530              535              540

aaa agg tcc aga att tgt ttc ccg ata gct ttt gct ata ttt aac ttt 1680
Lys Arg Ser Arg Ile Cys Phe Pro Ile Ala Phe Ala Ile Phe Asn Phe
545              550              555              560

ttt tat tgg ata ttt gtt tat tat tta taaacacact taatatactt 1727
Phe Tyr Trp Ile Phe Val Tyr Tyr Leu
      565

atagttttta taattaataa atttataaaa taattaataa taaatatatg taaaatttaa 1787

aggaaacgtg aatagaatca aaagagattc ttattggatt attccattat taataggatt 1847

cttactagac aatattaatg attttatatt atatatcact tataactttt gaacgggttg 1907

ttaaaaaatga atacaatatt tgacaaattt atataaaatt aaacaattta taatattgtc 1967

gaacatctta ccaccctaca gcgactcagt atactcgaaa atcgctattg aaatatctta 2027

cacaatttag tcattcctat ttcacatata atagttaata attaaaattg aaatttttaa 2087

ttaaaaaata atgatactgg aaattttaat tttaattatt aattattata tgaataatta 2147

attttactgc atagttataa ttataattat aaatattaaa tttttagaat aaatactcag 2207

ctggtctgaa aaaaaaaaaa aaaaaaaaaa aaa 2240

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<210> 20

<211> 569

<212> PRT

<213> Ctenocephalides felis

<400> 20

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Thr Ile Leu Asn Ala Ser Thr Thr Val Glu Lys Asn Pro Gly His Gln
  1           5           10          15

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Thr Ser Ile Ser Glu Glu Ser Thr Thr Lys Leu Val Lys Thr Thr Thr
 20 25 30
 Glu Asp Asn His Leu Gly Val Lys Ser Leu Asn Glu Pro Gly Asp Glu
 35 40 45
 Gln Glu Leu Lys Lys Pro Ser Ser His Gly Lys Glu His Ile Ser Leu
 50 55 60
 Pro Val Ala Ser Pro Val Pro Pro Val Ser His Ile Phe Gln Ala Thr
 65 70 75 80
 Pro Gly Asp Leu Cys Pro Ala Phe Asp Asp Ala Asp Arg Phe Thr Gln
 85 90 95
 Thr Glu Leu Leu Ser Arg Leu Thr Asn Asp Cys Arg Tyr Asp Lys Leu
 100 105 110
 Glu Arg Pro Leu Gly Pro His Asn Gly Ala Gly Pro Leu Pro Val Ala
 115 120 125
 Ala Arg Ile Tyr Val Tyr Phe Ile Gln Asn Thr Asp Ala His Glu Leu
 130 135 140
 Ser Phe Ser Val Thr Val Leu Leu Gln Phe Arg Tyr Pro Gly Arg Gln
 145 150 155 160
 Ile Gly Leu Gln Lys Ser Gly Thr His Pro Gly Arg Ser Ser Trp Ala
 165 170 175
 Asn Arg Ser Ser Gly Thr Lys Ser Gly Tyr Pro His Val Phe Val Ala
 180 185 190
 Asn Glu Arg Ser Ser Gln Val Met Gly Thr Asp Ala Gln Ser Lys Asp
 195 200 205
 Met Leu Val Ser Val Ala Pro Asp Gly Thr Val Val Phe Ser Val Arg
 210 215 220
 Met Lys Ala Thr Leu Tyr Cys Trp Met Asn Leu Arg Lys Phe Pro Phe
 225 230 235 240
 Asp Glu Gln Gln Cys Gln Met Met Leu Glu Ser Trp Lys Tyr Asn Thr
 245 250 255
 Ser Glu Leu Leu Leu Thr Trp Glu Pro Thr Ala Pro Val Thr Leu Ala
 260 265 270

Pro Glu Leu His Leu Thr Glu Tyr Val Leu Thr Asp Met Trp Val Asn
 275 280 285

Glu Thr Val Val Lys Ala Asp Leu Asp Asp Leu Arg His Gly Ala Phe
 290 295 300

Gly Gly Thr Tyr Ser Ala Leu Ser Phe Thr Ile Gln Ile Ser Arg Glu
 305 310 315 320

Met Gly Tyr Tyr Leu Met Asp Tyr Phe Leu Pro Ser Val Met Ile Val
 325 330 335

Ser Cys Ser Trp Val Ser Phe Trp Leu Ala Ala Asp Gln Ser Ala Pro
 340 345 350

Arg Val Thr Leu Gly Thr Ser Thr Met Leu Ser Phe Ile Thr Leu Ala
 355 360 365

Ser Ala Gln Gly Lys Thr Leu Pro Lys Val Ser Tyr Ile Lys Ala Ser
 370 375 380

Glu Ile Trp Phe Leu Gly Cys Thr Gly Phe Ile Phe Gly Ser Leu Val
 385 390 395 400

Glu Phe Ala Phe Val Asn Thr Ile Trp Arg Arg Arg Lys Asn Val Glu
 405 410 415

Leu Lys Lys Val Asn Ser Lys Tyr Ile Leu Lys Ser Thr Leu Thr Pro
 420 425 430

Arg Leu Ala Arg Lys Glu Phe His Ala Ser Phe Asn Ser Asn Pro Gly
 435 440 445

Gly Gly Asn Lys Asp Asp Gln Asp Leu Gly Arg Gly Ile Arg Val Phe
 450 455 460

Pro Pro Pro Leu Val Lys Ala Arg Ser Cys Ser Ser Leu Asp Arg Ser
 465 470 475 480

Asn Gly Ser Gly Asn Phe Leu Ser Val His Gly Asn Asp His Lys Val
 485 490 495

Pro Thr Ile Thr Ala Gln Cys Ala Asp Asp Ala Ala Ser Asp Gln Ile
 500 505 510

Ser Val Cys Val Asp Gly Glu Asn Glu Glu Pro Ala Gln Ile Val His
 515 520 525

His Thr Trp Thr Thr Met Thr Pro Gln Glu Ile Ser Met Trp Ile Asp
 530 535 540

Lys Arg Ser Arg Ile Cys Phe Pro Ile Ala Phe Ala Ile Phe Asn Phe
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Phe Tyr Trp Ile Phe Val Tyr Tyr Leu
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 <211> 2240
 <212> DNA
 <213> Ctenocephalides felis

<400> 21
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 aaaattaaaa tttccagtat cattattttt taatttaaaa tttcaatttt aattattaac 180
 tattatatgt gaaataggaa tgactaaatt gtgtaagata tttcaatagc gattttcgag 240
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 taagaatctc ttttgattct attcacgttt cctttaaatt ttacatatat ttatttttaa 480
 ttattttata aattttattaa ttattaaaac tataagtata ttaagtgtgt ttataaataa 540
 taaacaaata tccaataaaa aaagttaa atagcaaaag ctatcgggaa acaaattctg 600
 gaccttttgt caatccacat ggaaatttct tgagggtgtca tcgtcgtcca ggtgtggtga 660
 acaatttgtg caggttcttc gttttcccca tcgacacaaa ctgaaatctg gtcacttgcg 720
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 ttcaaaatat acttgctgtt gacttttttc aattccacat ttttccttcg tctccaaatt 1020
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gtggatgcgt ttaaaattgt 2240

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<210> 22

<211> 1707

<212> DNA

<213> *Ctenocephalides felis*

<220>

<221> CDS

<222> (1)..(1707)

<400> 22

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acc agt att tca gaa gaa tct acc aca aaa ttg gta aaa aca acc act 96
Thr Ser Ile Ser Glu Glu Ser Thr Thr Lys Leu Val Lys Thr Thr Thr
          20          25          30

gaa gac aac cac ctc ggt gta aag agc ctg aat gaa cct ggt gat gaa 144
Glu Asp Asn His Leu Gly Val Lys Ser Leu Asn Glu Pro Gly Asp Glu
          35          40          45

caa gaa tta aaa aaa cca tca tca cat ggt aag gag cat att tct tta 192
Gln Glu Leu Lys Lys Pro Ser Ser His Gly Lys Glu His Ile Ser Leu
          50          55          60

cca gtg gct tca cca gta cca cca gta tcg cat atc ttc cag gct aca 240
Pro Val Ala Ser Pro Val Pro Pro Val Ser His Ile Phe Gln Ala Thr
          65          70          75          80

cca gga gac ctt tgt cca gcc ttc gac gat gca gat cgc ttc acc cag 288
Pro Gly Asp Leu Cys Pro Ala Phe Asp Asp Ala Asp Arg Phe Thr Gln
          85          90          95

aca gaa ctt ttg tcc agg ctg aca aac gat tgc agg tac gat aag ctg 336
Thr Glu Leu Leu Ser Arg Leu Thr Asn Asp Cys Arg Tyr Asp Lys Leu
          100          105          110

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gag cgc cct ttg ggg cct cac aat ggt gca ggg ccg ctc ccg gtg gcc	384
Glu Arg Pro Leu Gly Pro His Asn Gly Ala Gly Pro Leu Pro Val Ala	
115 120 125	
gcc aga att tac gtg tat ttt ata caa aat acg gac gcg cac gaa ttg	432
Ala Arg Ile Tyr Val Tyr Phe Ile Gln Asn Thr Asp Ala His Glu Leu	
130 135 140	
tca ttt tcc gtg acc gtc ctc ctc caa ttt cgt tac cca gga cgc cag	480
Ser Phe Ser Val Thr Val Leu Leu Gln Phe Arg Tyr Pro Gly Arg Gln	
145 150 155 160	
att ggc cta caa aaa agt ggc acc cac cca gga cgg tca tca tgg gcg	528
Ile Gly Leu Gln Lys Ser Gly Thr His Pro Gly Arg Ser Ser Trp Ala	
165 170 175	
aat cgc agc tca ggg aca aaa tct ggg tac cca cat gta ttc gtt gcc	576
Asn Arg Ser Ser Gly Thr Lys Ser Gly Tyr Pro His Val Phe Val Ala	
180 185 190	
aac gag aga tct tcc cag gtt atg ggc aca gat gcc caa tct aag gac	624
Asn Glu Arg Ser Ser Gln Val Met Gly Thr Asp Ala Gln Ser Lys Asp	
195 200 205	
atg ttg gtg tca gta gct cct gat ggt aca gtc gtc ttt tcg gtc agg	672
Met Leu Val Ser Val Ala Pro Asp Gly Thr Val Val Phe Ser Val Arg	
210 215 220	
atg aag gca act ttg tac tgt tgg atg aat tta agg aaa ttt cct ttt	720
Met Lys Ala Thr Leu Tyr Cys Trp Met Asn Leu Arg Lys Phe Pro Phe	
225 230 235 240	
gat gaa caa cag tgt cag atg atg ttg gaa agt tgg aag tac aat aca	768
Asp Glu Gln Gln Cys Gln Met Met Leu Glu Ser Trp Lys Tyr Asn Thr	
245 250 255	
agt gaa ctc cta ttg act tgg gaa cca act gca cca gta act tta gca	816
Ser Glu Leu Leu Leu Thr Trp Glu Pro Thr Ala Pro Val Thr Leu Ala	
260 265 270	
cca gaa cta cat ttg acc gaa tat gtc ctt act gac atg tgg gta aat	864
Pro Glu Leu His Leu Thr Glu Tyr Val Leu Thr Asp Met Trp Val Asn	
275 280 285	
gaa aca gtt gtc aag gct gat ttg gat gac ctg aga cac gga gca ttt	912
Glu Thr Val Val Lys Ala Asp Leu Asp Asp Leu Arg His Gly Ala Phe	
290 295 300	

ggt ggg aca tac agt gcc tta agt ttc acg att caa ata agt cgt gaa 960
 Gly Gly Thr Tyr Ser Ala Leu Ser Phe Thr Ile Gln Ile Ser Arg Glu
 305 310 315 320

atg ggt tac tat tta atg gat tac ttt ttg cca tca gta atg atc gtg 1008
 Met Gly Tyr Tyr Leu Met Asp Tyr Phe Leu Pro Ser Val Met Ile Val
 325 330 335

tcg tgt tcc tgg gta agt ttt tgg ctg gca gca gac caa tca gca ccc 1056
 Ser Cys Ser Trp Val Ser Phe Trp Leu Ala Ala Asp Gln Ser Ala Pro
 340 345 350

aga gtc acc tta ggt aca agc acc atg tta tca ttt atc act tta gca 1104
 Arg Val Thr Leu Gly Thr Ser Thr Met Leu Ser Phe Ile Thr Leu Ala
 355 360 365

agt gcc caa gga aaa act tta ccc aaa gta tcg tac atc aaa gct tca 1152
 Ser Ala Gln Gly Lys Thr Leu Pro Lys Val Ser Tyr Ile Lys Ala Ser
 370 375 380

gaa atc tgg ttt tta ggt tgc acc ggg ttt att ttt ggg agt tta gtg 1200
 Glu Ile Trp Phe Leu Gly Cys Thr Gly Phe Ile Phe Gly Ser Leu Val
 385 390 395 400

gaa ttc gcg ttt gtc aac aca att tgg aga cga agg aaa aat gtg gaa 1248
 Glu Phe Ala Phe Val Asn Thr Ile Trp Arg Arg Arg Lys Asn Val Glu
 405 410 415

ttg aaa aaa gtc aac agc aag tat att ttg aag tca act ttg acg ccg 1296
 Leu Lys Lys Val Asn Ser Lys Tyr Ile Leu Lys Ser Thr Leu Thr Pro
 420 425 430

agg ttg gcc cgg aag gag ttt cat gct tcg ttt aat tcg aat cct gga 1344
 Arg Leu Ala Arg Lys Glu Phe His Ala Ser Phe Asn Ser Asn Pro Gly
 435 440 445

ggt ggt aat aag gat gat cag gat ttg gga aga ggg att agg gtc ttt 1392
 Gly Gly Asn Lys Asp Asp Gln Asp Leu Gly Arg Gly Ile Arg Val Phe
 450 455 460

ccg ccg cct ttg gtc aag gct agg tct tgt tcc agt ctg gat agg agt 1440
 Pro Pro Pro Leu Val Lys Ala Arg Ser Cys Ser Ser Leu Asp Arg Ser
 465 470 475 480

aat gga tcc ggg aat ttt ttg agc gtc cat gga aat gat cac aaa gtt 1488
 Asn Gly Ser Gly Asn Phe Leu Ser Val His Gly Asn Asp His Lys Val
 485 490 495

cca aca ata aca gca caa tgt gca gac gat gcc gca agt gac cag att 1536
 Pro Thr Ile Thr Ala Gln Cys Ala Asp Asp Ala Ala Ser Asp Gln Ile
 500 505 510

tca gtt tgt gtc gat ggg gaa aac gaa gaa cct gca caa att gtt cac 1584
 Ser Val Cys Val Asp Gly Glu Asn Glu Glu Pro Ala Gln Ile Val His
 515 520 525

cac acc tgg acg acg atg aca cct caa gaa att tcc atg tgg att gac 1632
 His Thr Trp Thr Thr Met Thr Pro Gln Glu Ile Ser Met Trp Ile Asp
 530 535 540

aaa agg tcc aga att tgt ttc ccg ata gct ttt gct ata ttt aac ttt 1680
 Lys Arg Ser Arg Ile Cys Phe Pro Ile Ala Phe Ala Ile Phe Asn Phe
 545 550 555 560

ttt tat tgg ata ttt gtt tat tat tta 1707
 Phe Tyr Trp Ile Phe Val Tyr Tyr Leu
 565

<210> 23

<211> 569

<212> PRT

<213> Ctenocephalides felis

<400> 23

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 20 25 30

Glu Asp Asn His Leu Gly Val Lys Ser Leu Asn Glu Pro Gly Asp Glu
 35 40 45

Gln Glu Leu Lys Lys Pro Ser Ser His Gly Lys Glu His Ile Ser Leu
 50 55 60

Pro Val Ala Ser Pro Val Pro Pro Val Ser His Ile Phe Gln Ala Thr
 65 70 75 80

Pro Gly Asp Leu Cys Pro Ala Phe Asp Asp Ala Asp Arg Phe Thr Gln
 85 90 95

Thr Glu Leu Leu Ser Arg Leu Thr Asn Asp Cys Arg Tyr Asp Lys Leu
 100 105 110

Glu Arg Pro Leu Gly Pro His Asn Gly Ala Gly Pro Leu Pro Val Ala
 115 120 125

Ala Arg Ile Tyr Val Tyr Phe Ile Gln Asn Thr Asp Ala His Glu Leu
 130 135 140

Ser Phe Ser Val Thr Val Leu Leu Gln Phe Arg Tyr Pro Gly Arg Gln
 145 150 155 160

Ile Gly Leu Gln Lys Ser Gly Thr His Pro Gly Arg Ser Ser Trp Ala
 165 170 175

Asn Arg Ser Ser Gly Thr Lys Ser Gly Tyr Pro His Val Phe Val Ala
 180 185 190

Asn Glu Arg Ser Ser Gln Val Met Gly Thr Asp Ala Gln Ser Lys Asp
 195 200 205

Met Leu Val Ser Val Ala Pro Asp Gly Thr Val Val Phe Ser Val Arg
 210 215 220

Met Lys Ala Thr Leu Tyr Cys Trp Met Asn Leu Arg Lys Phe Pro Phe
 225 230 235 240

Asp Glu Gln Gln Cys Gln Met Met Leu Glu Ser Trp Lys Tyr Asn Thr
 245 250 255

Ser Glu Leu Leu Leu Thr Trp Glu Pro Thr Ala Pro Val Thr Leu Ala
 260 265 270

Pro Glu Leu His Leu Thr Glu Tyr Val Leu Thr Asp Met Trp Val Asn
 275 280 285

Glu Thr Val Val Lys Ala Asp Leu Asp Asp Leu Arg His Gly Ala Phe
 290 295 300

Gly Gly Thr Tyr Ser Ala Leu Ser Phe Thr Ile Gln Ile Ser Arg Glu
 305 310 315 320

Met Gly Tyr Tyr Leu Met Asp Tyr Phe Leu Pro Ser Val Met Ile Val
 325 330 335

Ser Cys Ser Trp Val Ser Phe Trp Leu Ala Ala Asp Gln Ser Ala Pro
 340 345 350

Arg Val Thr Leu Gly Thr Ser Thr Met Leu Ser Phe Ile Thr Leu Ala
 355 360 365

Ser Ala Gln Gly Lys Thr Leu Pro Lys Val Ser Tyr Ile Lys Ala Ser
 370 375 380
 Glu Ile Trp Phe Leu Gly Cys Thr Gly Phe Ile Phe Gly Ser Leu Val
 385 390 395 400
 Glu Phe Ala Phe Val Asn Thr Ile Trp Arg Arg Arg Lys Asn Val Glu
 405 410 415
 Leu Lys Lys Val Asn Ser Lys Tyr Ile Leu Lys Ser Thr Leu Thr Pro
 420 425 430
 Arg Leu Ala Arg Lys Glu Phe His Ala Ser Phe Asn Ser Asn Pro Gly
 435 440 445
 Gly Gly Asn Lys Asp Asp Gln Asp Leu Gly Arg Gly Ile Arg Val Phe
 450 455 460
 Pro Pro Pro Leu Val Lys Ala Arg Ser Cys Ser Ser Leu Asp Arg Ser
 465 470 475 480
 Asn Gly Ser Gly Asn Phe Leu Ser Val His Gly Asn Asp His Lys Val
 485 490 495
 Pro Thr Ile Thr Ala Gln Cys Ala Asp Asp Ala Ala Ser Asp Gln Ile
 500 505 510
 Ser Val Cys Val Asp Gly Glu Asn Glu Glu Pro Ala Gln Ile Val His
 515 520 525
 His Thr Trp Thr Thr Met Thr Pro Gln Glu Ile Ser Met Trp Ile Asp
 530 535 540
 Lys Arg Ser Arg Ile Cys Phe Pro Ile Ala Phe Ala Ile Phe Asn Phe
 545 550 555 560
 Phe Tyr Trp Ile Phe Val Tyr Tyr Leu
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<210> 24

<211> 1707

<212> DNA

<213> Ctenocephalides felis

<400> 24

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aacggtcgtg gatgcgttta aaattgt 1707

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<210> 25

<211> 1429

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (18)..(1211)

<400> 25

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Met Ser Pro Ala Leu Leu Ala Val Ile Ala Val
1 5 10

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att ttg tgc att tta ttt aga att tta aat gta aat aca caa ccg gga 98
Ile Leu Cys Ile Leu Phe Arg Ile Leu Asn Val Asn Thr Gln Pro Gly
15 20 25

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acg cct aaa ata tgg tgc aaa gat gag acg ttt ctt gag gcc att tac 146
 Thr Pro Lys Ile Trp Cys Lys Asp Glu Thr Phe Leu Glu Ala Ile Tyr
 30 35 40

aaa att gct ccg ctt tta cga gag cct tat gtg cct cct aga ctc tgg 194
 Lys Ile Ala Pro Leu Leu Arg Glu Pro Tyr Val Pro Pro Arg Leu Trp
 45 50 55

gga ttc agc ggg cac gtg cag acg atc gtg cac agc ata gtg ggc cgc 242
 Gly Phe Ser Gly His Val Gln Thr Ile Val His Ser Ile Val Gly Arg
 60 65 70 75

gtc aag tgc cca ctg cca ctc gga gag agg gtg tac ctg tca ctg gct 290
 Val Lys Cys Pro Leu Pro Leu Gly Glu Arg Val Tyr Leu Ser Leu Ala
 80 85 90

gat ggg tcg acg ctc act tac gat cta tac aaa gct ctt aat ccg gat 338
 Asp Gly Ser Thr Leu Thr Tyr Asp Leu Tyr Lys Ala Leu Asn Pro Asp
 95 100 105

aaa cat gaa gat gag gta act ctg gca gtg tgc cct ggc ata agt aac 386
 Lys His Glu Asp Glu Val Thr Leu Ala Val Cys Pro Gly Ile Ser Asn
 110 115 120

tcc tcg gag tcg gtc tac att cgc aca ttt gtc cat tac gca caa tat 434
 Ser Ser Glu Ser Val Tyr Ile Arg Thr Phe Val His Tyr Ala Gln Tyr
 125 130 135

tac gga tac aga tgt gcc gta ctt aat cat att ggt gcc tta tct gga 482
 Tyr Gly Tyr Arg Cys Ala Val Leu Asn His Ile Gly Ala Leu Ser Gly
 140 145 150 155

gtg cct gtc act aac tct aga aat ttc agt tat ggt cat acc gat gat 530
 Val Pro Val Thr Asn Ser Arg Asn Phe Ser Tyr Gly His Thr Asp Asp
 160 165 170

tat aat gaa atg att cga cat ctg caa tca cag ttt cct cct tct aaa 578
 Tyr Asn Glu Met Ile Arg His Leu Gln Ser Gln Phe Pro Pro Ser Lys
 175 180 185

ata att tgt gtg ggc tac agt tta aga ggc aat atc atc acc aaa tat 626
 Ile Ile Cys Val Gly Tyr Ser Leu Arg Gly Asn Ile Ile Thr Lys Tyr
 190 195 200

ctt ggt gaa aag aca aaa att aaa aat ggt aat ata att gga gga att 674
 Leu Gly Glu Lys Thr Lys Ile Lys Asn Gly Asn Ile Ile Gly Gly Ile
 205 210 215

tca ata tgc caa gga tac aac gcc att gag ggt acg aaa tgg cta ctg 722
 Ser Ile Cys Gln Gly Tyr Asn Ala Ile Glu Gly Thr Lys Trp Leu Leu
 220 225 230 235

aat tgg caa aat ttc cgt cgt ttc tac ttg tat gtt tta aca gaa agt 770
 Asn Trp Gln Asn Phe Arg Arg Phe Tyr Leu Tyr Val Leu Thr Glu Ser
 240 245 250

gta aag aca ata att ttg aaa cac aga cat att ctc ctg tcc gat gaa 818
 Val Lys Thr Ile Ile Leu Lys His Arg His Ile Leu Leu Ser Asp Glu
 255 260 265

atg aaa tta aaa tgc caa ttg aat gag aga gat ata gca tcg gca gcc 866
 Met Lys Leu Lys Cys Gln Leu Asn Glu Arg Asp Ile Ala Ser Ala Ala
 270 275 280

act ttg ccg gaa ttg gat gac gcc tat acg aga aaa gtt cac aag ttt 914
 Thr Leu Pro Glu Leu Asp Asp Ala Tyr Thr Arg Lys Val His Lys Phe
 285 290 295

cca tct gta aac gct ttg tac aaa tgg agt tcc tgc ata aac tac atc 962
 Pro Ser Val Asn Ala Leu Tyr Lys Trp Ser Ser Cys Ile Asn Tyr Ile
 300 305 310 315

cag gac att gaa act cca atg gtg ttc ata aat gct aaa gat gat cct 1010
 Gln Asp Ile Glu Thr Pro Met Val Phe Ile Asn Ala Lys Asp Asp Pro
 320 325 330

cta ctc cat gat acg ctt cta gac cct ata aga aaa att gct ggt tct 1058
 Leu Leu His Asp Thr Leu Leu Asp Pro Ile Arg Lys Ile Ala Gly Ser
 335 340 345

tct aga aga atg atc tac gta gaa ctt tct cat gga ggt cat cca aga 1106
 Ser Arg Arg Met Ile Tyr Val Glu Leu Ser His Gly Gly His Pro Arg
 350 355 360

ttc ttt gaa agg ggt ctc ata tac ccc aat ccc gtt acc tgg ata gat 1154
 Phe Phe Glu Arg Gly Leu Ile Tyr Pro Asn Pro Val Thr Trp Ile Asp
 365 370 375

agg gca gtg ata agc ttg gtt ggn ggt ctc ctg ctt gca cat aat gaa 1202
 Arg Ala Val Ile Ser Leu Val Xaa Gly Leu Leu Leu Ala His Asn Glu
 380 385 390 395

aag agc tat taaaccaatt tagatttata attattatatt ataaaaattt 1251
 Lys Ser Tyr

atgaaatatt tttttgttat aaattgtgga tttatttttt tatttgtgct gtcttttgca 1311

tcttgtgctc agttattcga tggtattgaa gttattttct aaatttatat atacgcggat 1371

gtgaagatca atatatgtca taaagttagg ggatttaggg gaaaaaaaaa aaaaaaaaa 1429

<210> 26

<211> 398

<212> PRT

<213> Ctenocephalides felis

<400> 26

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Cys Lys Asp Glu Thr Phe Leu Glu Ala Ile Tyr Lys Ile Ala Pro Leu
35 40 45

Leu Arg Glu Pro Tyr Val Pro Pro Arg Leu Trp Gly Phe Ser Gly His
50 55 60

Val Gln Thr Ile Val His Ser Ile Val Gly Arg Val Lys Cys Pro Leu
65 70 75 80

Pro Leu Gly Glu Arg Val Tyr Leu Ser Leu Ala Asp Gly Ser Thr Leu
85 90 95

Thr Tyr Asp Leu Tyr Lys Ala Leu Asn Pro Asp Lys His Glu Asp Glu
100 105 110

Val Thr Leu Ala Val Cys Pro Gly Ile Ser Asn Ser Ser Glu Ser Val
115 120 125

Tyr Ile Arg Thr Phe Val His Tyr Ala Gln Tyr Tyr Gly Tyr Arg Cys
130 135 140

Ala Val Leu Asn His Ile Gly Ala Leu Ser Gly Val Pro Val Thr Asn
145 150 155 160

Ser Arg Asn Phe Ser Tyr Gly His Thr Asp Asp Tyr Asn Glu Met Ile
165 170 175

Arg His Leu Gln Ser Gln Phe Pro Pro Ser Lys Ile Ile Cys Val Gly
180 185 190

Tyr Ser Leu Arg Gly Asn Ile Ile Thr Lys Tyr Leu Gly Glu Lys Thr
 195 200 205

Lys Ile Lys Asn Gly Asn Ile Ile Gly Gly Ile Ser Ile Cys Gln Gly
 210 215 220

Tyr Asn Ala Ile Glu Gly Thr Lys Trp Leu Leu Asn Trp Gln Asn Phe
 225 230 235 240

Arg Arg Phe Tyr Leu Tyr Val Leu Thr Glu Ser Val Lys Thr Ile Ile
 245 250 255

Leu Lys His Arg His Ile Leu Leu Ser Asp Glu Met Lys Leu Lys Cys
 260 265 270

Gln Leu Asn Glu Arg Asp Ile Ala Ser Ala Ala Thr Leu Pro Glu Leu
 275 280 285

Asp Asp Ala Tyr Thr Arg Lys Val His Lys Phe Pro Ser Val Asn Ala
 290 295 300

Leu Tyr Lys Trp Ser Ser Cys Ile Asn Tyr Ile Gln Asp Ile Glu Thr
 305 310 315 320

Pro Met Val Phe Ile Asn Ala Lys Asp Asp Pro Leu Leu His Asp Thr
 325 330 335

Leu Leu Asp Pro Ile Arg Lys Ile Ala Gly Ser Ser Arg Arg Met Ile
 340 345 350

Tyr Val Glu Leu Ser His Gly Gly His Pro Arg Phe Phe Glu Arg Gly
 355 360 365

Leu Ile Tyr Pro Asn Pro Val Thr Trp Ile Asp Arg Ala Val Ile Ser
 370 375 380

Leu Val Xaa Gly Leu Leu Leu Ala His Asn Glu Lys Ser Tyr
 385 390 395

<210> 27

<211> 1429

<212> DNA

<213> Ctenocephalides felis

<400> 27

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caaaagacag cacaaataaa aaaataaatc cacaatttat aacaaaaaaa tatttcataa 180
atTTTTataa ataataatta taaatctaaa ttggtttaat agctcttttc attatgtgca 240
agcaggagac cnccaaccaa gcttatcact gccctatcta tccaggtaac gggattgggg 300
tatatgagac ccctttcaaa gaatcttgga tgacctccat gagaaagttc tacgtagatc 360
attcttctag aagaaccagc aatttttctt atagggtcta gaagcgtatc atggagtaga 420
ggatcatctt tagcatttat gaacaccatt ggagtttcaa tgcctggat gtagtttatg 480
caggaactcc atttgtacaa agcgtttaca gatggaaact tgtgaacttt tctcgtatag 540
gcgtcatcca attccggcaa agtggctgcc gatgctatat ctctctcatt caattggcat 600
tttaatttca ttcatcgga caggagaata tgtctgtgtt tcaaaattat tgtctttaca 660
ctttctgtta aaacatacaa gtagaaacga cggaattttt gccaattcag tagccatttc 720
gtacctcaa tggcgttgta tccttggcat attgaaattc ctccaattat attaccattt 780
ttaatttttg tcttttcacc aagatatttg gtgatgatat tgcctcttaa actgtagccc 840
acacaaatta ttttagaagg aggaaactgt gattgcagat gtcgaatcat ttcattataa 900
tcatcggtat gaccataact gaaatttcta gagttagtga caggcactcc agataaggca 960
ccaatatgat taagtacggc acatctgtat ccgtaatat gtgcgtaatg gacaaatgtg 1020
cgaatgtaga ccgactccga ggagttactt atgccagggc aactgccag agttacctca 1080
tcttcatgtt tatccggatt aagagctttg tatagatcgt aagtgagcgt cgacccatca 1140
gccagtgaca ggtacaccct ctctccgagt ggcagtgggc acttgacgcg gccactatg 1200
ctgtgcacga tcgtctgcac gtgcccgctg aatcccaga gtctaggagg cacataaggc 1260
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atTTtaggcg ttcccggttg tgtatttaca tttaaaattc taaataaaat gcacaaaatc 1380
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<210> 28

<211> 1194

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (1)..(1194)

<400> 28

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1 5 10 15

ttt aga att tta aat gta aat aca caa ccg gga acg cct aaa ata tgg 96
Phe Arg Ile Leu Asn Val Asn Thr Gln Pro Gly Thr Pro Lys Ile Trp
20 25 30

tgc aaa gat gag acg ttt ctt gag gcc att tac aaa att gct ccg ctt 144
Cys Lys Asp Glu Thr Phe Leu Glu Ala Ile Tyr Lys Ile Ala Pro Leu
35 40 45

tta cga gag cct tat gtg cct cct aga ctc tgg gga ttc agc ggg cac 192

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Leu Arg Glu Pro Tyr Val Pro Pro Arg Leu Trp Gly Phe Ser Gly His	
50 55 60	
gtg cag acg atc gtg cac agc ata gtg ggc cgc gtc aag tgc cca ctg	240
Val Gln Thr Ile Val His Ser Ile Val Gly Arg Val Lys Cys Pro Leu	
65 70 75 80	
cca ctc gga gag agg gtg tac ctg tca ctg gct gat ggg tcg acg ctc	288
Pro Leu Gly Glu Arg Val Tyr Leu Ser Leu Ala Asp Gly Ser Thr Leu	
85 90 95	
act tac gat cta tac aaa gct ctt aat ccg gat aaa cat gaa gat gag	336
Thr Tyr Asp Leu Tyr Lys Ala Leu Asn Pro Asp Lys His Glu Asp Glu	
100 105 110	
gta act ctg gca gtg tgc cct ggc ata agt aac tcc tcg gag tcg gtc	384
Val Thr Leu Ala Val Cys Pro Gly Ile Ser Asn Ser Ser Glu Ser Val	
115 120 125	
tac att cgc aca ttt gtc cat tac gca caa tat tac gga tac aga tgt	432
Tyr Ile Arg Thr Phe Val His Tyr Ala Gln Tyr Tyr Gly Tyr Arg Cys	
130 135 140	
gcc gta ctt aat cat att ggt gcc tta tct gga gtg cct gtc act aac	480
Ala Val Leu Asn His Ile Gly Ala Leu Ser Gly Val Pro Val Thr Asn	
145 150 155 160	
tct aga aat ttc agt tat ggt cat acc gat gat tat aat gaa atg att	528
Ser Arg Asn Phe Ser Tyr Gly His Thr Asp Asp Tyr Asn Glu Met Ile	
165 170 175	
cga cat ctg caa tca cag ttt cct cct tct aaa ata att tgt gtg ggc	576
Arg His Leu Gln Ser Gln Phe Pro Pro Ser Lys Ile Ile Cys Val Gly	
180 185 190	
tac agt tta aga ggc aat atc atc acc aaa tat ctt ggt gaa aag aca	624
Tyr Ser Leu Arg Gly Asn Ile Ile Thr Lys Tyr Leu Gly Glu Lys Thr	
195 200 205	
aaa att aaa aat ggt aat ata att gga gga att tca ata tgc caa gga	672
Lys Ile Lys Asn Gly Asn Ile Ile Gly Gly Ile Ser Ile Cys Gln Gly	
210 215 220	
tac aac gcc att gag ggt acg aaa tgg cta ctg aat tgg caa aat ttc	720
Tyr Asn Ala Ile Glu Gly Thr Lys Trp Leu Leu Asn Trp Gln Asn Phe	
225 230 235 240	
cgt cgt ttc tac ttg tat gtt tta aca gaa agt gta aag aca ata att	768


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Arg Arg Phe Tyr Leu Tyr Val Leu Thr Glu Ser Val Lys Thr Ile Ile
      245                      250                      255

ttg aaa cac aga cat att ctc ctg tcc gat gaa atg aaa tta aaa tgc 816
Leu Lys His Arg His Ile Leu Leu Ser Asp Glu Met Lys Leu Lys Cys
      260                      265                      270

caa ttg aat gag aga gat ata gca tgc gca gcc act ttg ccg gaa ttg 864
Gln Leu Asn Glu Arg Asp Ile Ala Ser Ala Ala Thr Leu Pro Glu Leu
      275                      280                      285

gat gac gcc tat acg aga aaa gtt cac aag ttt cca tct gta aac gct 912
Asp Asp Ala Tyr Thr Arg Lys Val His Lys Phe Pro Ser Val Asn Ala
      290                      295                      300

ttg tac aaa tgg agt tcc tgc ata aac tac atc cag gac att gaa act 960
Leu Tyr Lys Trp Ser Ser Cys Ile Asn Tyr Ile Gln Asp Ile Glu Thr
      305                      310                      315                      320

cca atg gtg ttc ata aat gct aaa gat gat cct cta ctc cat gat acg 1008
Pro Met Val Phe Ile Asn Ala Lys Asp Asp Pro Leu Leu His Asp Thr
      325                      330                      335

ctt cta gac cct ata aga aaa att gct ggt tct tct aga aga atg atc 1056
Leu Leu Asp Pro Ile Arg Lys Ile Ala Gly Ser Ser Arg Arg Met Ile
      340                      345                      350

tac gta gaa ctt tct cat gga ggt cat cca aga ttc ttt gaa agg ggt 1104
Tyr Val Glu Leu Ser His Gly Gly His Pro Arg Phe Phe Glu Arg Gly
      355                      360                      365

ctc ata tac ccc aat ccc gtt acc tgg ata gat agg gca gtg ata agc 1152
Leu Ile Tyr Pro Asn Pro Val Thr Trp Ile Asp Arg Ala Val Ile Ser
      370                      375                      380

ttg gtt ggn ggt ctc ctg ctt gca cat aat gaa aag agc tat 1194
Leu Val Xaa Gly Leu Leu Leu Ala His Asn Glu Lys Ser Tyr
      385                      390                      395

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<210> 29

<211> 398

<212> PRT

<213> Ctenocephalides felis

<400> 29

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Met Ser Pro Ala Leu Leu Ala Val Ile Ala Val Ile Leu Cys Ile Leu
  1              5              10              15

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Phe Arg Ile Leu Asn Val Asn Thr Gln Pro Gly Thr Pro Lys Ile Trp
 20 25 30

Cys Lys Asp Glu Thr Phe Leu Glu Ala Ile Tyr Lys Ile Ala Pro Leu
 35 40 45

Leu Arg Glu Pro Tyr Val Pro Pro Arg Leu Trp Gly Phe Ser Gly His
 50 55 60

Val Gln Thr Ile Val His Ser Ile Val Gly Arg Val Lys Cys Pro Leu
 65 70 75 80

Pro Leu Gly Glu Arg Val Tyr Leu Ser Leu Ala Asp Gly Ser Thr Leu
 85 90 95

Thr Tyr Asp Leu Tyr Lys Ala Leu Asn Pro Asp Lys His Glu Asp Glu
 100 105 110

Val Thr Leu Ala Val Cys Pro Gly Ile Ser Asn Ser Ser Glu Ser Val
 115 120 125

Tyr Ile Arg Thr Phe Val His Tyr Ala Gln Tyr Tyr Gly Tyr Arg Cys
 130 135 140

Ala Val Leu Asn His Ile Gly Ala Leu Ser Gly Val Pro Val Thr Asn
 145 150 155 160

Ser Arg Asn Phe Ser Tyr Gly His Thr Asp Asp Tyr Asn Glu Met Ile
 165 170 175

Arg His Leu Gln Ser Gln Phe Pro Pro Ser Lys Ile Ile Cys Val Gly
 180 185 190

Tyr Ser Leu Arg Gly Asn Ile Ile Thr Lys Tyr Leu Gly Glu Lys Thr
 195 200 205

Lys Ile Lys Asn Gly Asn Ile Ile Gly Gly Ile Ser Ile Cys Gln Gly
 210 215 220

Tyr Asn Ala Ile Glu Gly Thr Lys Trp Leu Leu Asn Trp Gln Asn Phe
 225 230 235 240

Arg Arg Phe Tyr Leu Tyr Val Leu Thr Glu Ser Val Lys Thr Ile Ile
 245 250 255

Leu Lys His Arg His Ile Leu Leu Ser Asp Glu Met Lys Leu Lys Cys
 260 265 270

Gln Leu Asn Glu Arg Asp Ile Ala Ser Ala Ala Thr Leu Pro Glu Leu
 275 280 285

Asp Asp Ala Tyr Thr Arg Lys Val His Lys Phe Pro Ser Val Asn Ala
 290 295 300

Leu Tyr Lys Trp Ser Ser Cys Ile Asn Tyr Ile Gln Asp Ile Glu Thr
 305 310 315 320

Pro Met Val Phe Ile Asn Ala Lys Asp Asp Pro Leu Leu His Asp Thr
 325 330 335

Leu Leu Asp Pro Ile Arg Lys Ile Ala Gly Ser Ser Arg Arg Met Ile
 340 345 350

Tyr Val Glu Leu Ser His Gly Gly His Pro Arg Phe Phe Glu Arg Gly
 355 360 365

Leu Ile Tyr Pro Asn Pro Val Thr Trp Ile Asp Arg Ala Val Ile Ser
 370 375 380

Leu Val Xaa Gly Leu Leu Leu Ala His Asn Glu Lys Ser Tyr
 385 390 395

<210> 30

<211> 1194

<212> DNA

<213> Ctenocephalides felis

<400> 30

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 atgagaaagt tctacgtaga tcattcttct agaagaacca gcaatttttc ttatagggtc 180
 tagaagcgta tcatggagta gaggatcatc tttagcattt atgaacacca ttggagtttc 240
 aatgtccttg atgtagttta tgcaggaaact ccatttgtac aaagcgttta cagatggaaa 300
 cttgtgaact tttctcgtat aggcgtcatc caattccggc aaagtggctg ccgatgctat 360
 atctctctca ttcaattggc attttaattt catttcatcg gacaggagaa tatgtctgtg 420
 tttcaaaatt attgtcttta cactttctgt taaaacatac aagtagaaac gacggaaatt 480
 ttgccaatc agtagccatt tcgtaccctc aatggcgttg tatecttggc atattgaaat 540
 tcctccaatt atattacat ttttaatttt tgtcttttca ccaagatatt tggatgatgat 600
 attgcctctt aaactgtagc ccacacaaat tatttttagaa ggaggaaact gtgattgcag 660
 atgtcgaatc atttcattat aatcatcggg atgaccataa ctgaaatttc tagagttagt 720
 gacaggcact ccagataagg caccaatatg attaagtacg gcacatctgt atccgtaata 780
 ttgtgcgtaa tggacaaatg tgcgaatgta gaccgactcc gaggagtac ttatgccagg 840
 gcacactgcc agagttacct catcttcagt tttatccgga ttaagagctt tgtatagatc 900

gtaagtgagc gtcgacccat cagccagtga caggtacacc ctctctccga gtggcagtgg 960
 gcaattgacg cggcccacta tgctgtgcac gatcgtctgc acgtgcccgc tgaatcccca 1020
 gagtctagga ggcacataag gctctcgtaa aagcggagca attttgtaaa tggcctcaag 1080
 aaacgtctca tctttgcacc atattttagg cgttcccggg tgtgtattta catttaaaat 1140
 tctaaataaa atgcacaaaa tcacagcaat aaccgctaaa agagccggag acat 1194

<210> 31

<211> 765

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (2)..(763)

<400> 31

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 His Asn Leu Tyr Leu His Ser Ala Leu Val Lys Ser Arg Asp Val Asp
 1 5 10 15

agg aga aac ccg gag aaa gtg aga gac gct aat tat tat ttc ttt atc 97
 Arg Arg Asn Pro Glu Lys Val Arg Asp Ala Asn Tyr Tyr Phe Phe Ile
 20 25 30

gaa gca gcg att gca cta ttt ata tct ttc ata ata aat gtg ttc gta 145
 Glu Ala Ala Ile Ala Leu Phe Ile Ser Phe Ile Ile Asn Val Phe Val
 35 40 45

gtt gct gtg ttt gca cat ggt tta ttt aaa act act aac caa gaa atc 193
 Val Ala Val Phe Ala His Gly Leu Phe Lys Thr Thr Asn Gln Glu Ile
 50 55 60

tta gac act tgc aaa agt tca gcc cca tat atc cga gag gaa gcc cta 241
 Leu Asp Thr Cys Lys Ser Ser Ala Pro Tyr Ile Arg Glu Glu Ala Leu
 65 70 75 80

ata gtc ttt aac aac aat act gaa att gta gaa gcc gat ttg tac aaa 289
 Ile Val Phe Asn Asn Asn Thr Glu Ile Val Glu Ala Asp Leu Tyr Lys
 85 90 95

gga ggc att tat tta ggc tgt gcc ttc ggg gct gca gcc gtg tac att 337
 Gly Gly Ile Tyr Leu Gly Cys Ala Phe Gly Ala Ala Ala Val Tyr Ile
 100 105 110

tgg gct gtc gga ata ttg gca gcc ggt caa agt tct aca atg act ggg 385
 Trp Ala Val Gly Ile Leu Ala Ala Gly Gln Ser Ser Thr Met Thr Gly
 115 120 125

act tat gct ggt caa ttc gcc atg gag ggt ttc ctc aac cta caa tgg 433
 Thr Tyr Ala Gly Gln Phe Ala Met Glu Gly Phe Leu Asn Leu Gln Trp
 130 135 140

tct cgc tgg aag agg atc cta ttc acc cga atg att gcc atc ata cca 481
 Ser Arg Trp Lys Arg Ile Leu Phe Thr Arg Met Ile Ala Ile Ile Pro
 145 150 155 160

aca ttt ctg atg gca ttt ttc aat agc atc gaa gac cta tcg ggt atg 529
 Thr Phe Leu Met Ala Phe Phe Asn Ser Ile Glu Asp Leu Ser Gly Met
 165 170 175

aac gac ctt ctg aat gca gtg atg tcc tta caa cta cct ttt gcg acc 577
 Asn Asp Leu Leu Asn Ala Val Met Ser Leu Gln Leu Pro Phe Ala Thr
 180 185 190

cta ccg act ata gcg ttt acc agc aat gct gct atc atg gga gaa ttc 625
 Leu Pro Thr Ile Ala Phe Thr Ser Asn Ala Ala Ile Met Gly Glu Phe
 195 200 205

gtt aat gga gcg gtt aat tca gtc gtt gca atc ctt cta tcg att tta 673
 Val Asn Gly Ala Val Asn Ser Val Val Ala Ile Leu Leu Ser Ile Leu
 210 215 220

gta att gca atc aat att tat ttt gtg gtc gac cag gtt aat aat gga 721
 Val Ile Ala Ile Asn Ile Tyr Phe Val Val Asp Gln Val Asn Asn Gly
 225 230 235 240

gac ctg acg gaa ggc tat tta gct ctt ata gtg ata ttt gga at 765
 Asp Leu Thr Glu Gly Tyr Leu Ala Leu Ile Val Ile Phe Gly
 245 250

<210> 32

<211> 254

<212> PRT

<213> Ctenocephalides felis

<400> 32

His Asn Leu Tyr Leu His Ser Ala Leu Val Lys Ser Arg Asp Val Asp
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Arg Arg Asn Pro Glu Lys Val Arg Asp Ala Asn Tyr Tyr Phe Phe Ile
 20 25 30

Glu Ala Ala Ile Ala Leu Phe Ile Ser Phe Ile Ile Asn Val Phe Val
 35 40 45

Val Ala Val Phe Ala His Gly Leu Phe Lys Thr Thr Asn Gln Glu Ile
 50 55 60
 Leu Asp Thr Cys Lys Ser Ser Ala Pro Tyr Ile Arg Glu Glu Ala Leu
 65 70 75 80
 Ile Val Phe Asn Asn Asn Thr Glu Ile Val Glu Ala Asp Leu Tyr Lys
 85 90 95
 Gly Gly Ile Tyr Leu Gly Cys Ala Phe Gly Ala Ala Ala Val Tyr Ile
 100 105 110
 Trp Ala Val Gly Ile Leu Ala Ala Gly Gln Ser Ser Thr Met Thr Gly
 115 120 125
 Thr Tyr Ala Gly Gln Phe Ala Met Glu Gly Phe Leu Asn Leu Gln Trp
 130 135 140
 Ser Arg Trp Lys Arg Ile Leu Phe Thr Arg Met Ile Ala Ile Ile Pro
 145 150 155 160
 Thr Phe Leu Met Ala Phe Phe Asn Ser Ile Glu Asp Leu Ser Gly Met
 165 170 175
 Asn Asp Leu Leu Asn Ala Val Met Ser Leu Gln Leu Pro Phe Ala Thr
 180 185 190
 Leu Pro Thr Ile Ala Phe Thr Ser Asn Ala Ala Ile Met Gly Glu Phe
 195 200 205
 Val Asn Gly Ala Val Asn Ser Val Val Ala Ile Leu Leu Ser Ile Leu
 210 215 220
 Val Ile Ala Ile Asn Ile Tyr Phe Val Val Asp Gln Val Asn Asn Gly
 225 230 235 240
 Asp Leu Thr Glu Gly Tyr Leu Ala Leu Ile Val Ile Phe Gly
 245 250

<210> 33

<211> 765

<212> DNA

<213> *Ctenocephalides felis*

<400> 33

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gaattaaccg ctccattaac gaattctccc atgatagcag cattgctggt aaacgctata 180
gtcggtaggg tcgcaaaagg tagttgtaag gacatcactg cattcagaag gtcgttcata 240
cccgataggt cttcgatgct attgaaaaat gccatcagaa atggttggtat gatggcaatc 300
attcgggtga ataggatcct cttccagcga gaccattgta ggttgaggaa accctccatg 360
gcgaattgac cagcataagt ccagtcatt gtagaacttt gaccggctgc caatattccg 420
acagcccaaa tgtacacggc tgcagccccg aaggcacagc ctaaataaat gcctcctttg 480
tacaaatcgg cttctacaat ttcagtattg ttgttaaaga ctattagggc ttcctctcgg 540
atatatgggg ctgaactttt gcaagtgtct aagatttctt ggtagtagt tttaaataaa 600
ccatgtgcaa acacagcaac tacgaacaca tttattatga aagatataaa tagtgcaatc 660
gtgcttcga taaagaaata ataattagcg tctctcactt tctccgggtt tctcctgtcg 720
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<210> 34

<211> 762

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (1)..(762)

<400> 34

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  1             5             10            15
agg aga aac ccg gag aaa gtg aga gac gct aat tat tat ttc ttt atc 96
Arg Arg Asn Pro Glu Lys Val Arg Asp Ala Asn Tyr Tyr Phe Phe Ile
      20             25             30
gaa gca gcg att gca cta ttt ata tct ttc ata ata aat gtg ttc gta 144
Glu Ala Ala Ile Ala Leu Phe Ile Ser Phe Ile Ile Asn Val Phe Val
      35             40             45
gtt gct gtg ttt gca cat ggt tta ttt aaa act act aac caa gaa atc 192
Val Ala Val Phe Ala His Gly Leu Phe Lys Thr Thr Asn Gln Glu Ile
      50             55             60
tta gac act tgc aaa agt tca gcc cca tat atc cga gag gaa gcc cta 240
Leu Asp Thr Cys Lys Ser Ser Ala Pro Tyr Ile Arg Glu Glu Ala Leu
      65             70             75             80
ata gtc ttt aac aac aat act gaa att gta gaa gcc gat ttg tac aaa 288
Ile Val Phe Asn Asn Asn Thr Glu Ile Val Glu Ala Asp Leu Tyr Lys
      85             90             95

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gga ggc att tat tta ggc tgt gcc ttc ggg gct gca gcc gtg tac att 336
 Gly Gly Ile Tyr Leu Gly Cys Ala Phe Gly Ala Ala Ala Val Tyr Ile
 100 105 110

tgg gct gtc gga ata ttg gca gcc ggt caa agt tct aca atg act ggg 384
 Trp Ala Val Gly Ile Leu Ala Ala Gly Gln Ser Ser Thr Met Thr Gly
 115 120 125

act tat gct ggt caa ttc gcc atg gag ggt ttc ctc aac cta caa tgg 432
 Thr Tyr Ala Gly Gln Phe Ala Met Glu Gly Phe Leu Asn Leu Gln Trp
 130 135 140

tct cgc tgg aag agg atc cta ttc acc cga atg att gcc atc ata cca 480
 Ser Arg Trp Lys Arg Ile Leu Phe Thr Arg Met Ile Ala Ile Ile Pro
 145 150 155 160

aca ttt ctg atg gca ttt ttc aat agc atc gaa gac cta tcg ggt atg 528
 Thr Phe Leu Met Ala Phe Phe Asn Ser Ile Glu Asp Leu Ser Gly Met
 165 170 175

aac gac ctt ctg aat gca gtg atg tcc tta caa cta cct ttt gcg acc 576
 Asn Asp Leu Leu Asn Ala Val Met Ser Leu Gln Leu Pro Phe Ala Thr
 180 185 190

cta ccg act ata gcg ttt acc agc aat gct gct atc atg gga gaa ttc 624
 Leu Pro Thr Ile Ala Phe Thr Ser Asn Ala Ala Ile Met Gly Glu Phe
 195 200 205

gtt aat gga gcg gtt aat tca gtc gtt gca atc ctt cta tcg att tta 672
 Val Asn Gly Ala Val Asn Ser Val Val Ala Ile Leu Leu Ser Ile Leu
 210 215 220

gta att gca atc aat att tat ttt gtg gtc gac cag gtt aat aat gga 720
 Val Ile Ala Ile Asn Ile Tyr Phe Val Val Asp Gln Val Asn Asn Gly
 225 230 235 240

gac ctg acg gaa ggc tat tta gct ctt ata gtg ata ttt gga 762
 Asp Leu Thr Glu Gly Tyr Leu Ala Leu Ile Val Ile Phe Gly
 245 250

<210> 35

<211> 254

<212> PRT

<213> Ctenocephalides felis

<400> 35

His Asn Leu Tyr Leu His Ser Ala Leu Val Lys Ser Arg Asp Val Asp
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 Arg Arg Asn Pro Glu Lys Val Arg Asp Ala Asn Tyr Tyr Phe Phe Ile
 20 25 30
 Glu Ala Ala Ile Ala Leu Phe Ile Ser Phe Ile Ile Asn Val Phe Val
 35 40 45
 Val Ala Val Phe Ala His Gly Leu Phe Lys Thr Thr Asn Gln Glu Ile
 50 55 60
 Leu Asp Thr Cys Lys Ser Ser Ala Pro Tyr Ile Arg Glu Glu Ala Leu
 65 70 75 80
 Ile Val Phe Asn Asn Asn Thr Glu Ile Val Glu Ala Asp Leu Tyr Lys
 85 90 95
 Gly Gly Ile Tyr Leu Gly Cys Ala Phe Gly Ala Ala Ala Val Tyr Ile
 100 105 110
 Trp Ala Val Gly Ile Leu Ala Ala Gly Gln Ser Ser Thr Met Thr Gly
 115 120 125
 Thr Tyr Ala Gly Gln Phe Ala Met Glu Gly Phe Leu Asn Leu Gln Trp
 130 135 140
 Ser Arg Trp Lys Arg Ile Leu Phe Thr Arg Met Ile Ala Ile Ile Pro
 145 150 155 160
 Thr Phe Leu Met Ala Phe Phe Asn Ser Ile Glu Asp Leu Ser Gly Met
 165 170 175
 Asn Asp Leu Leu Asn Ala Val Met Ser Leu Gln Leu Pro Phe Ala Thr
 180 185 190
 Leu Pro Thr Ile Ala Phe Thr Ser Asn Ala Ala Ile Met Gly Glu Phe
 195 200 205
 Val Asn Gly Ala Val Asn Ser Val Val Ala Ile Leu Leu Ser Ile Leu
 210 215 220
 Val Ile Ala Ile Asn Ile Tyr Phe Val Val Asp Gln Val Asn Asn Gly
 225 230 235 240
 Asp Leu Thr Glu Gly Tyr Leu Ala Leu Ile Val Ile Phe Gly
 245 250

<210> 36
 <211> 762
 <212> DNA
 <213> Ctenocephalides felis

<400> 36
 tccaaatatac actataagag ctaaatagcc ttccgctcagg tctccattat taacctggtc 60
 gaccacaaaa taaatattga ttgcaattac taaaatcgat agaaggattg caacgactga 120
 attaaccgct ccattaacga attctcccat gatagcagca ttgctggtaa acgctatagt 180
 cggtaggggtc gcaaaaggta gttgtaagga catcactgca ttcagaagggt cgttcatacc 240
 cgataggtct tcgatgctat tgaaaaatgc catcagaaat gttgggtatga tggcaatcat 300
 tcgggtgaat aggatcctct tccagcgaga ccattgtagg ttgaggaaac cctccatggc 360
 gaattgacca gcataagtcc cagtcattgt agaactttga ccggctgcca atattccgac 420
 agcccaaagt tacacggctg cagccccgaa ggcacagcct aaataaatgc ctcctttgta 480
 caaatcggtc tctacaattt cagtattgtt gttaaagact attagggctt cctctcggat 540
 atatggggct gaacttttgc aagtgtctaa gatttcttgg ttagtagttt taaataaacc 600
 atgtgcaaac acagcaacta cgaacacatt tattatgaaa gatataaata gtgcaatcgc 660
 tgcttcgata aagaaataat aattagcgtc tctcactttc tccgggtttc tctgtcgcac 720
 atctctcgac tttaacaaggg cactatgcaa atacaaattg tg 762

<210> 37
 <211> 604
 <212> DNA
 <213> Ctenocephalides felis

<220>
 <221> CDS
 <222> (26)..(430)

<400> 37
 tcaatactct tacttacaga tcaaa atg aga tcc ttc ctc ctc gct aca ttc 52
 Met Arg Ser Phe Leu Leu Ala Thr Phe
 1 5
 gca gcc ttg ttg gtt tgc tct gtt ttt gct aga cct caa gaa gat aaa 100
 Ala Ala Leu Leu Val Cys Ser Val Phe Ala Arg Pro Gln Glu Asp Lys
 10 15 20 25
 tat act agc aaa ttt gat aac atc aat tta gat gaa att ttg caa agc 148
 Tyr Thr Ser Lys Phe Asp Asn Ile Asn Leu Asp Glu Ile Leu Gln Ser
 30 35 40
 aat aga ttg ctc aac aac tat gta aac tgc ctt ctc gac aaa ggc agc 196
 Asn Arg Leu Leu Asn Asn Tyr Val Asn Cys Leu Leu Asp Lys Gly Ser
 45 50 55

tgc aca gca gaa gga aaa gaa ttg aaa aaa gtc tta cct gat gcc tta 244
 Cys Thr Ala Glu Gly Lys Glu Leu Lys Lys Val Leu Pro Asp Ala Leu
 60 65 70
 tcc aac gag tgc gct aaa tgt agc gag aaa caa aga gaa gga gct gag 292
 Ser Asn Glu Cys Ala Lys Cys Ser Glu Lys Gln Arg Glu Gly Ala Glu
 75 80 85
 aaa gta atc aga ttt ttc gtc aac aac aaa cca gaa gag tgg aag aaa 340
 Lys Val Ile Arg Phe Phe Val Asn Asn Lys Pro Glu Glu Trp Lys Lys
 90 95 100 105
 ctt tct gca gtt tac gat cca acc ggc gag tac aca aag aaa tat agc 388
 Leu Ser Ala Val Tyr Asp Pro Thr Gly Glu Tyr Thr Lys Lys Tyr Ser
 110 115 120
 acc caa att gaa caa gtg aag aga ggc gaa ccc gtt aca gtt 430
 Thr Gln Ile Glu Gln Val Lys Arg Gly Glu Pro Val Thr Val
 125 130 135
 taaatttcca aaaagagatt tctcaaaata ttggcaagtc atttaggaat cgtagtggtta 490
 ttttcacctg tagatatttc tgtttttaat aataaaaaaa atgtagttgt aggacaaata 550
 gagcatatit aaataaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaa 604

<210> 38

<211> 135

<212> PRT

<213> Ctenocephalides felis

<400> 38

Met Arg Ser Phe Leu Leu Ala Thr Phe Ala Ala Leu Leu Val Cys Ser
 1 5 10 15
 Val Phe Ala Arg Pro Gln Glu Asp Lys Tyr Thr Ser Lys Phe Asp Asn
 20 25 30
 Ile Asn Leu Asp Glu Ile Leu Gln Ser Asn Arg Leu Leu Asn Asn Tyr
 35 40 45
 Val Asn Cys Leu Leu Asp Lys Gly Ser Cys Thr Ala Glu Gly Lys Glu
 50 55 60
 Leu Lys Lys Val Leu Pro Asp Ala Leu Ser Asn Glu Cys Ala Lys Cys
 65 70 75 80

Ser Glu Lys Gln Arg Glu Gly Ala Glu Lys Val Ile Arg Phe Phe Val
 85 90 95

Asn Asn Lys Pro Glu Glu Trp Lys Lys Leu Ser Ala Val Tyr Asp Pro
 100 105 110

Thr Gly Glu Tyr Thr Lys Lys Tyr Ser Thr Gln Ile Glu Gln Val Lys
 115 120 125

Arg Gly Glu Pro Val Thr Val
 130 135

<210> 39
 <211> 604
 <212> DNA
 <213> Ctenocephalides felis

<400> 39
 tttttttttt tttttttttt tttttttttt tttttttttt atttaaatat gctctatttg 60
 tcctacaact acattttttt tattattaaa aacagaaata tctacaggtg aaaataaacac 120
 tacgattcct aaatgacttg ccaatatattt gagaaatctc tttttggaaa tttaaactgt 180
 aacgggttcg cctctcttca cttgttcaat ttgggtgcta tatttctttg tgtactcgcc 240
 gggttgatcg taaactgcag aaagtcttct ccactcttct ggtttggtgt tgacgaaaaa 300
 tctgattact ttctcagctc cttctctttg tttctcgcta catttagcgc actcgttgga 360
 taaggcatca ggtaagactt ttttcaattc ttttccttct gctgtgcagc tgcctttgtc 420
 gagaaggcag tttacatagt tgttgagcaa tctattgctt tgcaaaattt catctaaatt 480
 gatgttatca aatttgctag tatatttatc ttcttgaggt ctagcaaaaa cagagcaaac 540
 caacaaggct gcgaatgtag cgaggaggaa ggatctcatt ttgatctgta agtaagagta 600
 ttga 604

<210> 40
 <211> 405
 <212> DNA
 <213> Ctenocephalides felis

<220>
 <221> CDS
 <222> (1)..(405)

<400> 40
 atg aga tcc ttc ctc ctc gct aca ttc gca gcc ttg ttg gtt tgc tct 48
 Met Arg Ser Phe Leu Leu Ala Thr Phe Ala Ala Leu Leu Val Cys Ser
 1 5 10 15

gtt ttt gct aga cct caa gaa gat aaa tat act agc aaa ttt gat aac 96
 Val Phe Ala Arg Pro Gln Glu Asp Lys Tyr Thr Ser Lys Phe Asp Asn
 20 25 30

atc aat tta gat gaa att ttg caa agc aat aga ttg ctc aac aac tat 144
 Ile Asn Leu Asp Glu Ile Leu Gln Ser Asn Arg Leu Leu Asn Asn Tyr
 35 40 45

gta aac tgc ctt ctc gac aaa ggc agc tgc aca gca gaa gga aaa gaa 192
 Val Asn Cys Leu Leu Asp Lys Gly Ser Cys Thr Ala Glu Gly Lys Glu
 50 55 60

ttg aaa aaa gtc tta cct gat gcc tta tcc aac gag tgc gct aaa tgt 240
 Leu Lys Lys Val Leu Pro Asp Ala Leu Ser Asn Glu Cys Ala Lys Cys
 65 70 75 80

agc gag aaa caa aga gaa gga gct gag aaa gta atc aga ttt ttc gtc 288
 Ser Glu Lys Gln Arg Glu Gly Ala Glu Lys Val Ile Arg Phe Phe Val
 85 90 95

aac aac aaa cca gaa gag tgg aag aaa ctt tct gca gtt tac gat cca 336
 Asn Asn Lys Pro Glu Glu Trp Lys Lys Leu Ser Ala Val Tyr Asp Pro
 100 105 110

acc ggc gag tac aca aag aaa tat agc acc caa att gaa caa gtg aag 384
 Thr Gly Glu Tyr Thr Lys Lys Tyr Ser Thr Gln Ile Glu Gln Val Lys
 115 120 125

aga ggc gaa ccc gtt aca gtt 405
 Arg Gly Glu Pro Val Thr Val
 130 135

<210> 41

<211> 135

<212> PRT

<213> Ctenocephalides felis

<400> 41

Met Arg Ser Phe Leu Leu Ala Thr Phe Ala Ala Leu Leu Val Cys Ser
 1 5 10 15

Val Phe Ala Arg Pro Gln Glu Asp Lys Tyr Thr Ser Lys Phe Asp Asn
 20 25 30

Ile Asn Leu Asp Glu Ile Leu Gln Ser Asn Arg Leu Leu Asn Asn Tyr
 35 40 45

Val Asn Cys Leu Leu Asp Lys Gly Ser Cys Thr Ala Glu Gly Lys Glu
50 55 60

Leu Lys Lys Val Leu Pro Asp Ala Leu Ser Asn Glu Cys Ala Lys Cys
65 70 75 80

Ser Glu Lys Gln Arg Glu Gly Ala Glu Lys Val Ile Arg Phe Phe Val
85 90 95

Asn Asn Lys Pro Glu Glu Trp Lys Lys Leu Ser Ala Val Tyr Asp Pro
100 105 110

Thr Gly Glu Tyr Thr Lys Lys Tyr Ser Thr Gln Ile Glu Gln Val Lys
115 120 125

Arg Gly Glu Pro Val Thr Val
130 135

<210> 42

<211> 405

<212> DNA

<213> Ctenocephalides felis

<400> 42

aactgtaacg gggtcgccctc tcttcacttg ttcaatttgg gtgctatatt tctttgtgta 60
ctcgccgggtt ggatcgtaaa ctgcagaaag tttcttccac tcttctgggtt tgttgttgac 120
gaaaaatctg attactttct cagctccttc tctttgttgc tcgctacatt tagcgcactc 180
gttgataag gcatcaggta agactttttt caattctttt ccttctgctg tgcagctgcc 240
tttgctcgaga aggagttta catagttgtt gagcaatcta ttgctttgca aaatttcac 300
taaattgatg ttatcaaatt tgctagtata tttatcttct tgaggtctag caaaaacaga 360
gcaaaccaac aaggctgcga atgtagcgag gaggaaggat ctcat 405

<210> 43

<211> 1227

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (312)..(1049)

<400> 43

gcgttttcta aaacaaactt ctttataatg taaataaata gaaatgaaat gtgaataaat 60

ttgagtatga aaacaaatta atcaacaaca caatttaatt tccttatttc atttataatg 120

ttggcattct aataaattaa gttattatga gaaaacttca ttacagtgat gtgtcaagct 180
 cctgtcaaaa taaattgaaa atctgtttgt gataaaaatt gttttttcta taaaaatagc 240
 ataatttagg aaactatatc gaaaaaataa taaattttta agtggccctt taatatcttc 300
 tagaattaaa t.atg gca acc gta ccc ctt atg ttt gct gaa gat gac cta 350
 Met Ala Thr Val Pro Leu Met Phe Ala Glu Asp Asp Leu
 1 5 10
 gaa ggt ggt gga aaa gaa ggt tca ata gag aat gac ttt gca tat aac 398
 Glu Gly Gly Gly Lys Glu Gly Ser Ile Glu Asn Asp Phe Ala Tyr Asn
 15 20 25
 aat aac gtt att aat gca tct gtt cgt gtg aga ctt gga ttc att cga 446
 Asn Asn Val Ile Asn Ala Ser Val Arg Val Arg Leu Gly Phe Ile Arg
 30 35 40 45
 aaa gtc tat gga cta ctt aca gtt cag ttg tta ttg agc ttg ctg gtg 494
 Lys Val Tyr Gly Leu Leu Thr Val Gln Leu Leu Leu Ser Leu Leu Val
 50 55 60
 ggc ata gcc tgc caa att gag cct gta caa gga att gtt aaa gca aat 542
 Gly Ile Ala Cys Gln Ile Glu Pro Val Gln Gly Ile Val Lys Ala Asn
 65 70 75
 gac tgg ctc gta tta gtc tgc atg atc agt agc att ggt gtg ctg att 590
 Asp Trp Leu Val Leu Val Cys Met Ile Ser Ser Ile Gly Val Leu Ile
 80 85 90
 gct ctt cac atc aag aga aag gaa aca cca act aat ttt att ctt tta 638
 Ala Leu His Ile Lys Arg Lys Glu Thr Pro Thr Asn Phe Ile Leu Leu
 95 100 105
 aca att ttc aca att aca aac tcc atc agt gtg ggt gtg cta gta aca 686
 Thr Ile Phe Thr Ile Thr Asn Ser Ile Ser Val Gly Val Leu Val Thr
 110 115 120 125
 cat ttt aaa gct agt tta gta ctt caa gct att gca att act ttg tgt 734
 His Phe Lys Ala Ser Leu Val Leu Gln Ala Ile Ala Ile Thr Leu Cys
 130 135 140
 gtt gtt att ggt ata aca ctc ttt aca tta caa aac aaa ctg gat tta 782
 Val Val Ile Gly Ile Thr Leu Phe Thr Leu Gln Asn Lys Leu Asp Leu
 145 150 155
 tca atg ctc cca gca gca ttg ttt act gga ctt tgc tgt tta ttg gta 830

Ser Met Leu Pro Ala Ala Leu Phe Thr Gly Leu Cys Cys Leu Leu Val
 160 165 170

ggt ggt atc att cag ata ttc act cat tca acc att ttt gaa tta gtg 878
 Gly Gly Ile Ile Gln Ile Phe Thr His Ser Thr Ile Phe Glu Leu Val
 175 180 185

tta tgc agt ttt ggt gca cta ata ttc agc ttg ttt ttg ctt tat gac 926
 Leu Cys Ser Phe Gly Ala Leu Ile Phe Ser Leu Phe Leu Leu Tyr Asp
 190 195 200 205

acg cat gtt atg atg acg aca tta tca cca gaa gag tat att ttg gcc 974
 Thr His Val Met Met Thr Thr Leu Ser Pro Glu Glu Tyr Ile Leu Ala
 210 215 220

aca att aac ttg tac tta gat att gtc aat cta ttc ata tat att tta 1022
 Thr Ile Asn Leu Tyr Leu Asp Ile Val Asn Leu Phe Ile Tyr Ile Leu
 225 230 235

aga att ctg caa gca gca gac agg ggt taaatcatct gtgataaaat 1069
 Arg Ile Leu Gln Ala Ala Asp Arg Gly
 240 245

ataaatgggtt caaaattcta tattgtatta tttatatatt taaaaatgcc ttgcttattt 1129

atattgtatg tttccattta ttgtatatag tttattttgt tattttatgg ccaagattaa 1189

taaattcgaa attaatatgc aaaaaaaaaa aaaaaaaaaa 1227

<210> 44
 <211> 246
 <212> PRT
 <213> Ctenocephalides felis

<400> 44
 Met Ala Thr Val Pro Leu Met Phe Ala Glu Asp Asp Leu Glu Gly Gly
 1 5 10 15

Gly Lys Glu Gly Ser Ile Glu Asn Asp Phe Ala Tyr Asn Asn Asn Val
 20 25 30

Ile Asn Ala Ser Val Arg Val Arg Leu Gly Phe Ile Arg Lys Val Tyr
 35 40 45

Gly Leu Leu Thr Val Gln Leu Leu Leu Ser Leu Leu Val Gly Ile Ala
 50 55 60

Cys Gln Ile Glu Pro Val Gln Gly Ile Val Lys Ala Asn Asp Trp Leu
 65 70 75 80
 Val Leu Val Cys Met Ile Ser Ser Ile Gly Val Leu Ile Ala Leu His
 85 90 95
 Ile Lys Arg Lys Glu Thr Pro Thr Asn Phe Ile Leu Leu Thr Ile Phe
 100 105 110
 Thr Ile Thr Asn Ser Ile Ser Val Gly Val Leu Val Thr His Phe Lys
 115 120 125
 Ala Ser Leu Val Leu Gln Ala Ile Ala Ile Thr Leu Cys Val Val Ile
 130 135 140
 Gly Ile Thr Leu Phe Thr Leu Gln Asn Lys Leu Asp Leu Ser Met Leu
 145 150 155 160
 Pro Ala Ala Leu Phe Thr Gly Leu Cys Cys Leu Leu Val Gly Gly Ile
 165 170 175
 Ile Gln Ile Phe Thr His Ser Thr Ile Phe Glu Leu Val Leu Cys Ser
 180 185 190
 Phe Gly Ala Leu Ile Phe Ser Leu Phe Leu Leu Tyr Asp Thr His Val
 195 200 205
 Met Met Thr Thr Leu Ser Pro Glu Glu Tyr Ile Leu Ala Thr Ile Asn
 210 215 220
 Leu Tyr Leu Asp Ile Val Asn Leu Phe Ile Tyr Ile Leu Arg Ile Leu
 225 230 235 240
 Gln Ala Ala Asp Arg Gly
 245

<210> 45

<211> 1227

<212> DNA

<213> Ctenocephalides felis

<400> 45

tttttttttt ttttttttgc atattaattt cgaatttatt aatcttgcc ataaaataac 60
 aaaataaact atatacaata aatggaaaca tacaatataa ataagcaagg catttttaaa 120
 tatataaata atacaatata gaattttgaa ccatttatat tttatcacag atgatttaac 180
 ccctgtctgc tgcttgcaga attcttaaaa tatatatgaa tagattgaca atatctaagt 240

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acaagttaat tgtggccaaa atatactctt ctggtgataa tgtcgtcatc ataacatgcg 300
tgtcataaag caaaaacaag ctgaatatta gtgcaccaa actgcataac actaattcaa 360
aaatggttga atgagtgaat atctgaatga taccacctac caataaacag caaagtccag 420
taaacaatgc tgctgggagc attgataaat ccagtttggt ttgtaatgta aagagtgtta 480
taccaataac aacacacaaa gtaattgcaa tagcttgaag tactaaacta gctttaaaat 540
gtgttactag cacaccaca ctgatggagt ttgtaattgt gaaaattggt aaaagaataa 600
aattagttgg tgtttccttt ctcttgatgt gaagagcaat cagcacacca atgctactga 660
tcatgcagac taatacgagc cagtcatttg cttaacaat tccttgtaaca ggctcaattt 720
ggcaggctat gcccaccagc aagctcaata acaactgaac tgtaagtagt ccatagactt 780
ttcgaatgaa tccaagtctc acacgaacag atgcattaat aacgttattg ttatatgcaa 840
agtcattctc tattgaacct tcttttcac caccttctag gtcattctca gcaaacataa 900
gggttacggg tgccatattt aattctagaa gatattaaag ggccacttaa aaatttatta 960
ttttttcgat atagtttctt aaattatgct atttttatag aaaaaacaat ttttatcaca 1020
aacagatttt caatttattt tgacaggagc ttgacacatc actgtaatga agttttctca 1080
taataactta atttattaga atgccaacat tataaatgaa ataaggaaat taaattgtgt 1140
tggtgattaa ttgtttttca tactcaaatt tattcacatt tcatttctat ttatttacat 1200
tataaagaag ttgtttttag aaaacgc 1227

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<210> 46

<211> 738

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (1)..(738)

<400> 46

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atg gca acc gta ccc ctt atg ttt gct gaa gat gac cta gaa ggt ggt 48
Met Ala Thr Val Pro Leu Met Phe Ala Glu Asp Asp Leu Glu Gly Gly
  1           5           10          15

gga aaa gaa ggt tca ata gag aat gac ttt gca tat aac aat aac gtt 96
Gly Lys Glu Gly Ser Ile Glu Asn Asp Phe Ala Tyr Asn Asn Asn Val
      20           25           30

att aat gca tct gtt cgt gtg aga ctt gga ttc att cga aaa gtc tat 144
Ile Asn Ala Ser Val Arg Val Arg Leu Gly Phe Ile Arg Lys Val Tyr
      35           40           45

gga cta ctt aca gtt cag ttg tta ttg agc ttg ctg gtg ggc ata gcc 192
Gly Leu Leu Thr Val Gln Leu Leu Ser Leu Leu Val Gly Ile Ala
      50           55           60

tgc caa att gag cct gta caa gga att gtt aaa gca aat gac tgg ctc 240
Cys Gln Ile Glu Pro Val Gln Gly Ile Val Lys Ala Asn Asp Trp Leu
      65           70           75           80

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gta tta gtc tgc atg atc agt agc att ggt gtg ctg att gct ctt cac 288
 Val Leu Val Cys Met Ile Ser Ser Ile Gly Val Leu Ile Ala Leu His
 85 90 95

atc aag aga aag gaa aca cca act aat ttt att ctt tta aca att ttc 336
 Ile Lys Arg Lys Glu Thr Pro Thr Asn Phe Ile Leu Leu Thr Ile Phe
 100 105 110

aca att aca aac tcc atc agt gtg ggt gtg cta gta aca cat ttt aaa 384
 Thr Ile Thr Asn Ser Ile Ser Val Gly Val Leu Val Thr His Phe Lys
 115 120 125

gct agt tta gta ctt caa gct att gca att act ttg tgt gtt gtt att 432
 Ala Ser Leu Val Leu Gln Ala Ile Ala Ile Thr Leu Cys Val Val Ile
 130 135 140

ggt ata aca ctc ttt aca tta caa aac aaa ctg gat tta tca atg ctc 480
 Gly Ile Thr Leu Phe Thr Leu Gln Asn Lys Leu Asp Leu Ser Met Leu
 145 150 155 160

cca gca gca ttg ttt act gga ctt tgc tgt tta ttg gta ggt ggt atc 528
 Pro Ala Ala Leu Phe Thr Gly Leu Cys Cys Leu Leu Val Gly Gly Ile
 165 170 175

att cag ata ttc act cat tca acc att ttt gaa tta gtg tta tgc agt 576
 Ile Gln Ile Phe Thr His Ser Thr Ile Phe Glu Leu Val Leu Cys Ser
 180 185 190

ttt ggt gca cta ata ttc agc ttg ttt ttg ctt tat gac acg cat gtt 624
 Phe Gly Ala Leu Ile Phe Ser Leu Phe Leu Leu Tyr Asp Thr His Val
 195 200 205

atg atg acg aca tta tca cca gaa gag tat att ttg gcc aca att aac 672
 Met Met Thr Thr Leu Ser Pro Glu Glu Tyr Ile Leu Ala Thr Ile Asn
 210 215 220

ttg tac tta gat att gtc aat cta ttc ata tat att tta aga att ctg 720
 Leu Tyr Leu Asp Ile Val Asn Leu Phe Ile Tyr Ile Leu Arg Ile Leu
 225 230 235 240

caa gca gca gac agg ggt 738
 Gln Ala Ala Asp Arg Gly
 245

<210> 47

<211> 246

<212> PRT

<213> Ctenocephalides felis

<400> 47

Met Ala Thr Val Pro Leu Met Phe Ala Glu Asp Asp Leu Glu Gly Gly
 1 5 10 15

Gly Lys Glu Gly Ser Ile Glu Asn Asp Phe Ala Tyr Asn Asn Asn Val
 20 25 30

Ile Asn Ala Ser Val Arg Val Arg Leu Gly Phe Ile Arg Lys Val Tyr
 35 40 45

Gly Leu Leu Thr Val Gln Leu Leu Leu Ser Leu Leu Val Gly Ile Ala
 50 55 60

Cys Gln Ile Glu Pro Val Gln Gly Ile Val Lys Ala Asn Asp Trp Leu
 65 70 75 80

Val Leu Val Cys Met Ile Ser Ser Ile Gly Val Leu Ile Ala Leu His
 85 90 95

Ile Lys Arg Lys Glu Thr Pro Thr Asn Phe Ile Leu Leu Thr Ile Phe
 100 105 110

Thr Ile Thr Asn Ser Ile Ser Val Gly Val Leu Val Thr His Phe Lys
 115 120 125

Ala Ser Leu Val Leu Gln Ala Ile Ala Ile Thr Leu Cys Val Val Ile
 130 135 140

Gly Ile Thr Leu Phe Thr Leu Gln Asn Lys Leu Asp Leu Ser Met Leu
 145 150 155 160

Pro Ala Ala Leu Phe Thr Gly Leu Cys Cys Leu Leu Val Gly Gly Ile
 165 170 175

Ile Gln Ile Phe Thr His Ser Thr Ile Phe Glu Leu Val Leu Cys Ser
 180 185 190

Phe Gly Ala Leu Ile Phe Ser Leu Phe Leu Leu Tyr Asp Thr His Val
 195 200 205

Met Met Thr Thr Leu Ser Pro Glu Glu Tyr Ile Leu Ala Thr Ile Asn
 210 215 220

Leu Tyr Leu Asp Ile Val Asn Leu Phe Ile Tyr Ile Leu Arg Ile Leu
 225 230 235 240

Gln Ala Ala Asp Arg Gly
245

<210> 48

<211> 738

<212> DNA

<213> *Ctenocephalides felis*

<400> 48

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cgtgtcataa agcaaaaaca agctgaatat tagtgcacca aaactgcata acactaattc 180
aaaaatgggt gaatgagtga atatctgaat gataccacct accaataaac agcaaagtcc 240
agtaaacaat gctgctggga gcattgataa atccagtttg ttttgtaatg taaagagtgt 300
tataccaata acaacacaca aagtaattgc aatagcttga agtactaaac tagctttaaa 360
atgtgttact agcacacca cactgatgga gtttgtaatt gtgaaaattg ttaaaagaat 420
aaaattagtt ggtgtttcct ttctcttgat gtgaagagca atcagcacac caatgctact 480
gatcatgcag actaatagca gccagtcatt tgctttaaca attccttgta caggctcaat 540
ttggcaggct atgccacca gcaagctcaa taacaactga actgtaagta gtccatagac 600
ttttcgaatg aatccaagtc tcacacgaac agatgcatta ataacgttat tgttatatgc 660
aaagtcattc tctattgaac cttcttttcc accaccttct aggtcatctt cagcaaacad 720
aaggggtacg gttgccat                                     738

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<210> 49

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 49

gcggatccta tgctgaattg caagaacctt g

31

<210> 50

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 50
caggtaccct cttttagaag caccgggtccc 30

<210> 51
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 51
cgggatcctg ctgacaggaa ttcgcccac 29

<210> 52
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 52
catggtaccc ctggtttaag ccttacttag c 31

<210> 53
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 53
ccattattaa cctggtcgac cac 23

<210> 54
<211> 18
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 54

ggaaacagta tgaccatg

18

<210> 55

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 55

cgctatagtc ggtagggtcg c

21

<210> 56

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 56

aattaaccct cactaaagg

20

<210> 57

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 57

caaaactggt ctccccgctc

20

<210> 58
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 58
taatacgaact cactataggg

20

<210> 59
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 59
ggttcgacctc tcttcacttg

20

<210> 60
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 60
cggttggatc gtaaactgca g

21

<210> 61
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 61
cgcggatcca gaagataaat atactagcaa atttgataac 40

<210> 62
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 62
gaggaattcc tctttttgga aatttaaact gtaacgg 37

<210> 63
<211> 500
<212> DNA
<213> Ctenocephalides felis

<400> 63
accaggncga ataatatctc taattgtttc aatacaaaact ataaanggta ttaaaattat 60
tgaggttcct tgaggcacta gatgactaaa tatatgggta taattattaa ttcacccctan 120
taatatataat cttaatcata aaggaagtct taatcttaaa gttaaagtta aatgactagt 180
tcttgtnaaa atgtaattaa ataatcctaa aaaattatta aataaaataa atgaaaataa 240
tctaataaat ataaaagttc ttcctatagg attatatctt ataagtaatt taaattcatt 300
atgaagtgtt ataataattt ttaatcaaat tatgttgtat cgggacggaa ttattcanaa 360
tatatttgga ataaataata ntccataac ctgccggnnn tttgtntnnt ctctccnnct 420
ntccannctn atcncntncc cntcnnnnnt ganatncntn tnnnnnctnt ctcccctnct 480
tacnctgnnn ctccnnnttc 500

<210> 64
<211> 164
<212> DNA
<213> Ctenocephalides felis

<400> 64
gcagctaaca agaattgatt aactgcattc caaagaagaa attattctga tgaattatct 60
ttgacatttg ctgctgccaa taagggtattc tatgactcag tagatgtaaa gcagggtggat 120
gttccatctt tcagtgggtgc ttttggtatc ttagctaaac acgt 164

<210> 65
<211> 337
<212> DNA

<213> Ctenocephalides felis

<400> 65

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cgcttccagt tgacgtttcg tctcatgcaa taattaatta aacttgtttg ttagagggtgc 60
aaaataaaaat taaattaaaa tgactgcctg gagacaagct ggtttaaact acattaactt 120
ttcaacaatt gctgcccga tgggccgcca agctttgaaa tctgatctaa aaaatgaggc 180
tttgaaacgg gacgtatcta gcattaaatt cacaccctgg aaggacggaa aagcgatcac 240
tggaaaaccg gaataaaatc aaatactcat ctataaaaagt gaaaccaagt aatcacaaga 300
tggaataata gacaattcac tcaaattaat aatgtgt 337
```

<210> 66

<211> 201

<212> DNA

<213> Ctenocephalides felis

<400> 66

```
acaggccatt tatgtgccag ctgatgactt gacagatcct gcccctgcc ctacattcgc 60
tcaattggac gccaccactg tattgtcccg tgccattgct gaattaggta tctaccagc 120
tgtggatcct ttggattcta catcccgat tatggacccc aacatcattg gagctgaaca 180
ttacaacatt gcccgtagcg t 201
```

<210> 67

<211> 179

<212> DNA

<213> Ctenocephalides felis

<400> 67

```
accttgagac ttttggcagc taacaagaat gtattaactg cattccaaag aagaaattat 60
tctgatgaat tatctttgac atttgctgct gccataagg tattctatga ctcatagat 120
gtaaagcagg tggatgttcc atctttcagt ggtgcttttg gtatcttagc taaacacgt 179
```

<210> 68

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 68

```
acaccatcat tgtatcagcc actgcttctg atgctgcccc tcttcaatat cttgctccat 60
actctggatg tgctatgggt gaattcttcc gtgacaatgg aaaacatgct ttgatcatct 120
atgatgattt atccaaacaa gctgttgctt atcgtcaa atgtcttattg ttacgtcgtc 180
caccaggctg tgaggcttat ccaggtagtg tcttctacct tcaactcacgt ctacttgaac 240
gtgccgctaa aatgtctgaa gctcatggag gtggctcttt gactgctttg ccagttattg 300
aaacacaagc tggtagcgta tcagcttata ttccaactaa tgcatttcc attactgatg 360
gcaaatcttc ttggaaactg aattgttcta caagggtatt cgaccagcca tcaatgtagg 420
tttatctgta tctcgtgtag gtctgctgca caaaccaaag ccatgaaaca gggtgccggt 480
```

tcatgaaact ggaattagct

500

<210> 69

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 69

tacataatgg catctttgaa gttaaataatc gtaaccagga gcttaagctc atctgcagtc 60
 gcgtctcaaa tggttaaacc acccgtaaa gtatatggaa ttgagggtag atacgcaact 120
 gccttgact caggagccag taagaataaa gtactcgacg ccgctcgagaa agatttggtc 180
 aaaaatacaga ataacttaaa gaccgatgta aaattccgag atttcattgc caatccaaca 240
 ttcaagcgct caattaaatc aaatgcattg aaggaagcca gcagcaagct gcaaatggct 300
 ccagctactt ctaacttggt ggagtactt gctgagaatg gacgtttaa taaactggaa 360
 ggtgttatca acgcttataa agttatgatg tctgctcatc gtggagaggt tccatgtgaa 420
 gttacaacag ctaaaccctt agatgagaat caacgaaaac aacttgaaag cttttaagag 480
 gattcttaaa acccaaagaa aacttattac tacccttaag taatcctcat cttggtggaa 540
 tgtcgtntca 549

<210> 70

<211> 238

<212> DNA

<213> Ctenocephalides felis

<400> 70

actgctgac cctgtccctc gccccagcat aataccatta ggttgaaacg tccatttcct 60
 gcgtccacca gattgcgagt gtaacggtaa cgatcaaatt tggcataccg cctccactcg 120
 gctggatccg acttgtagct cagcatcaga tgattgacca actcgatgac tacatcatct 180
 tcagcaaagt ctctgtgcaa ctgttcaact agatctttta gagaagtaac accttggt 238

<210> 71

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 71

actaatgaca aggctggtgg tccccattat gtcttgcgct ggactactcc tcaatctatc 60
 aaggagacat ttgttccaat cacatgtgtc gactatccat acatgagaga ataagctgcc 120
 aaatcccccc caaagcacc acaccataac aataattcaa tggacactaa accaaagatg 180
 cgtgtttaca atactctgtt caagatctcg atcataaaat ttgcacacag tccggttcac 240
 ttttgatttc tgttattcag taactatatt atctttaccg cgcacttgga aaataacagg 300
 tgaatcaaag aaattgattt tagtaattat ttttcttggt atataaataa aagaatatta 360
 tagtaacatt ttgccattaa aaatattaat tttacctagg aagcaatata aagtattcat 420
 tcaagtcaaa tttgaagaca tttattaaaa atcgatgttg ccattttatt aaatagatta 480
 tgaaaattat ggggggtatta 500

<210> 72
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 72
 acatataata ttgataatat gcatagggcg gattttcagt gtctgtccat tcttctggtg 60
 tcggaacatc cttatcgaat aatggatttt cgggtttact ttcacatcc accgagtcaa 120
 aacctatcac gaactgaaga aacttgtgta gttcaggatg cgattgtgga tcattcgtaa 180
 cttcaaataa tggcaaatag atatttgtaa gaatttcttg gaaattgttc atcagcttat 240
 ttaatttgaa aatattcgat aatcgtggta tttaataag ccagcgcaca ttactactat 300
 aaacattaga ttctattgcc cattttgcaa gtttatccca ctcttcagga cttttacat 360
 aaattgaaag tctcaattcg caattttgat atttgcttcc ttctaaatcc gaactaactt 420
 cattgataat tcttgcaaaa tattttccgt tcaagtagtt atcggtttta agaaacttct 480
 ctcaatctgc tttcaccaat 500

<210> 73
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 73
 actaattaat tttaaaaaat taaggataga aaccaacctg gcttaaaccg gtttgaactc 60
 agannatgta agaattaatg gtcgaacaga ccaaatttta aaacttctgc attttaaaat 120
 tatcttaatc caacatcgag gtcgcaatct attttgtcga tatgttctct taaaaataat 180
 tacgctgtta tcccttaagt aacttaatct tttaatcata atttatggat caattattca 240
 attatttatg ttttaataaa aaaaaagttt tataaatttt cctatcacc caataaaaata 300
 tattaatata aataaattta ataataattt taaaattaat ctatatttat atataaaact 360
 ttaaagggtc ttctcgtcct ttaataatat ttacgctttt taacataaaa attaaattct 420
 ataacaattt tattaagaca ggtaatatc attcaatcat tcattccagc ttcaattaaa 480
 aaactatgga ttatgctacc 500

<210> 74
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 74
 ccttatgata ttcataaatc taaaccacag tnnntttttc ttgcactttg tgcaaaaacta 60
 tattccagtg ttgtctgcct ttgacacagc tcaacatttt gttgcatttt gcaatctttc 120
 actaatatct gccagttgg caacatcgaa aattgctttt acatagtcag ccctgacatt 180
 tttatattga aggtagtagt catgttccca gacgtcaatt ccaaatagtg gaaccagacc 240
 agtggttgct tccaatggat cttgatttgc gcatgtagct atttgtaact ttttagcagt 300
 tttattataa gccagccatc cccatcctga gccttgaaca cctacagctg ctgtagacaa 360

```

agcagttttc atcttatcca tagatccaaa atcacattca atcattttct gtagctggtc 420
acttggttta cccccccttcg gggaaagggt tttccaaaag atagaatgat tgatgtgcct 480
cctccattga atttcaatgc 500

```

<210> 75

<211> 348

<212> DNA

<213> *Ctenocephalides felis*

<400> 75

```

cagtgcagaa aagcaagtgc cattatcggt ctctccgtcg atttacgaaa ctacacttca 60
attccaaaaa ggataactgg gactcgcatt ccgactcact acccaacgac tacgatttaa 120
ttagctaaag gccaaattaa agcttcaaga tgccgttcaa gccagtagaa aacccaaaat 180
gcccaaaatg cggcaaatca gtatatgccg ccgaagagcg tgttgccggg ggacttaagt 240
ggcacaaaat gtgtttcaaa tgcggtatgt gcagcaaatt gttggactcc accaactgca 300
ctgagcacga aggtgagttg ttctgcaaga actgccacgc ccgcaagt 348

```

<210> 76

<211> 451

<212> DNA

<213> *Ctenocephalides felis*

<400> 76

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actatatata atatataatcg attttctata ttagtcaaatt atatgtgtta agcatttttt 60
tagagcattc ctatttaaaa ataaaatgtt acgtcaaatt tgaaaattcc aagtaaaaaa 120
atagtttttt tctatatttg aattttgatc gttgtattac tacgaatgtt gccttgagat 180
gtgcgttcta tttttagtaa taaatatcat tcgtaatgaa ttaattcgcg ttttaagccct 240
gtttttggcg cagtccgggc atataatgtc ggcgccgtct gtgatgaagc cacggccgac 300
tagagaagct ttgcatgacg cgcaggtgaa gcagtcattg tgccaatggc gatcttcaaa 360
cgagatgaag cgagtgccac caattcctgt aatgggtttg gtgcaagccg tgcattcttt 420
agcaaacaaat tcaccgaaca ttcagcacag t 451

```

<210> 77

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 77

```

accacatatg acttcaatgg gacttggtta tggaggctct tcaatcactt cggggcaaaa 60
catatcttct gngggatcac tgccaaattc tattgaaact tgtaaattca atctacctca 120
caataattct gcacaacac cagaaaatcc ttacgtttat gatacagtaa cttctaatta 180
tagccaacca ccagtaactt catcaccata tgcaccagta gaacctaaaga gagcgagg 240
acatccatta aaaagtttca gtgttccggc accaccaca tcatcaactc caaatactcc 300
taacaccaag cataatgctt cccaagggtat taatcgacca caaaatgcat caccatataa 360
aaaaccttta atgattaata gactgcaagc aggaccatca gtttgtcatt catcagatga 420

```

agttcaacga ctggctccga gccctcaact gaggaattgc atcaagaaat ggctatttgg 480
aaggcttaat gaaagactaa 500

<210> 78

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 78

ggagaacgga caccaacagc aaggtggcga gtacaccaag gccatgaaca aggactggca 60
ctctggtcac ttctgctgct ggcaatgcga cgagtcactg accggccaac gctacgtact 120
ccgcgacgaa catccttact gcatcaagtg ctacgagagc gtcttttcca acacctgcga 180
ggaatgcagc aagatcattg gcattgattc caaggactta tcttaciaaag aaaagcattg 240
gcatgaggca tgtttcttgt gcagtaaatg ccgcgtatct ctctgctgata aacagttcgg 300
aagtaaatg gacaaaatct actgtggaaa ctgctatgat gcccaattcg cttccagggtg 360
tgatgggtgc ggcgaaatct tccgtgcggg tactaaaaaa atggagtaca aaactcgtca 420
atggcatgaa aagtgtttct gctgctgtgt gtgcaagact gtatcggaac caaaagcttt 480
attctcgtga gcaggaaatt attgccagct gtatgaggaa agttcgcacc agatcattaa 540
atgcataaga 550

<210> 79

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 79

ttatttttgt gtgatttaat aaattctagt gaactgttca ttgctaaata tcacatagaa 60
atgtctataa ataacgataa aactaatttg gatttggttg aagaagacga cgagtttgag 120
gagtttcctt gcgacgattg ggcatcacac gacgaagatg cagatgatgt tacagtttgg 180
gaagataatt gggatgatga taatgttaaa gatgacttca gccagcaatt aaggtctcaa 240
atgagcaatc ctaaagaggc atctaaaaaa agttaagact atgtatatat tagaatataa 300
tgtaatttca aaaaacataa ttaataaaact gattttttaa atnttaaaaa aaaaaaaaaa 360
aaaaaaaaaa aacctnngg ggggggccc gcccattc nccctatngg gagtcgnttc 420
aattcactgn ccngtnttcc acgtcngnac tgggaaaccc tgcgttacc acttaatccc 480
ttgagcacat ccccttttcc cagtgggnaa taggaaaagg cccccgntc cccttcaca 540
ttgncacct 550

<210> 80

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 80

gctatcagtc cacctaaaag caaaaccagc ccattaagtg tgtcttcaaa aggaagggcc 60
atagattttt caaatcagtt tgacgttggc gaaaagcaga aaacaaaaat agacgacatg 120

```

aatgacatga tgtcgacaaa aaacatcatc gccgataagg ataaaacgaa aatcgacagc 180
aaaggtcttg atgatgtaag catggatgat gacgatgacg acgatgtgat atcagcaggc 240
gacgtttcga aaagtaaadc agaacaatca ctggctcgaa aaccaatact gaccacaaat 300
gattcgccaa atatgcaagt gcattgtatc ttcaatggaa caacatataa gccaggacat 360
tcggttagata aacactgtga aggcatgtgc aaatgttccg aagaaggctc ttggagatgt 420
gagcccagggt gtgaagctct tatgtcacia gactcctgat ggcccctaa atgatgtcac 480
caccaaaaat gaaaggggtg ccgcgaaatg gccaccaaac aannatgctg cctgtctggt 540
tggcancgt 549

```

<210> 81

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 81

```

actgttgctc ttgcgaaaat ccgtcgttat cagaaatcca ctgaattggt gatccgaaaa 60
ttgccattcc aacgttttgt gagagaaatt gcccaggatt tcaagactga tctacgtttc 120
cagtcagctg ctattggtgc tctacaggaa gccagtggag cttatctcgt tggcttattt 180
gaagatacaa atttgtgcgc cattcatgcc aagagggtaa caattatgcc taaagataac 240
cagtttagcgc ggcgaaattcg tgggtgaacgt gcttaaaatt cgggttatca agaagccaga 300
tatcccacat gcacatctcg atatttacct attataaata tacacatata tgtggaaatc 360
gtgacattta tgtttaagca ttcactttta taacaaatca tctttacatc ttangacgta 420
gtcaaaaatt tggtaacaat attttgcat tgaatatgaa attttagctt taatcatatt 480
tatattatca tttttgtgta 500

```

<210> 82

<211> 238

<212> DNA

<213> Ctenocephalides felis

<400> 82

```

aaacaattcc gagattaacg gggctcgacc cggcgaaatc ggtgcttgcg tatcgagcgc 60
aataaaaaca ttatataaca caaacaatgc agattattcg gttaacgaaa ttataagtga 120
aaaaaagtca ttaggaaaca caaaaattaa acataaaatc aaacctagca ttagcaaaaa 180
tgccgaaaaa aatattaaaa aaaatactga cattattcca gaaatgttaa aatctggt 238

```

<210> 83

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 83

```

acagggnaaa acacaattat gccatacatt agctgtaaat tgccaggtaa acatatttca 60
caaagaatta tcagtattat aattaactgc attatctata acaaaaatat cttatattcc 120
ataagaattt taaaatagat ttcattactt ttcaataat tagttattag ttaaaatatt 180

```

```

ttctagattt attttaata ttttttgtg ttaaattcaa taacatcaa atattaatgt 240
tttctcacia tctcgtaaca gaataattat taattaaata ttcttaaatt aattctttgc 300
agttacctat agatcaaaat ggaggtgaag gcaaatgttt atatatagac actgagggaa 360
catttcgacc tgacagggtta ttggctgttg ctgccgttac aaattatctg gtagcgatgt 420
gtagataat attgcatatg caccagcata taatacagat catcaaacac aacttttaat 480
atatgctctg caatgatgtc 500

```

<210> 84

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 84

```

actcgcggtg tacgctcttg gtgtcagatt tttcttcgtg tttggcatgg accaatagtt 60
tattgtcgac tgtcttgaca acaatttctt ctggtgcata ttgactaaca tcaaacctca 120
atttcagaac ttgccaatcg gcgtcctcac ggatcaatgg tgaattgagg tcgtccaacc 180
acgtgctgac ttgtctgctt ggtgcgcca agtttgagct ggacagcctt tggtcagtgg 240
aagtttggtg tgtgtgctg cttgtgcttt tgaagaagtt attactttct ctattcataa 300
gctcggatct gaatttagac atttcctctt ccattttctt catttcggca tcaaactctt 360
ccctgatgct gctgaattct gtatcaatta cactgaaatc tccaagcttg attgggatat 420
cgngttttaa tccactatca nncattttta taaaanttta tttaanattc acatcacaca 480
naattaatta attggtaaat 500

```

<210> 85

<211> 413

<212> DNA

<213> *Ctenocephalides felis*

<400> 85

```

tgcagactgc ttctaattct tttgnttgn gttcgtattc ttccttatcg gccaatgggt 60
tagcatccaa ccatttaata acatcattgc atttgtccat aattacagtc ttatcggttt 120
cggcaagttt atccttcaat ttttcatctt ccattgtgga ttcatgttg aagcaagtaa 180
gattctaacg agttcttagc agcaattgta gacttttgtt tctcatcttc atttctgtat 240
ttctcagcat cgtaaacat cttttcaatg tcttcttget aagacgacct ttgtcatttg 300
taatggatgat tttattttcc ttgntgggtg atttttcaat tgctgtgaca ttaagaatac 360
cgtagcatc aatatcgaaa gttacctcaa tttgtgggac accacgaggt gca 413

```

<210> 86

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 86

```

actgcaatct tcatcagatt tcgttgacgt gtttgaaaga tttttgaatg ctgaatctgc 60
accagataga cctaacaaaa tgtatatcat atataagtat aagtttttga taaagatttg 120

```


tgatactata taactaattt atttaattta ggaagaggaa tttatgaaaa tattgaaaca 180
 aaaaactatt ttttattcaa gcataatatt taattattaa ttagatcgat aattaacaaa 240
 caatcaaaat agttccaatt caaatagaac taacctctta tctgcagtgt ctctgcacat 300
 tttaaaagat cttgtagccc ttcttgtgta acatttactt cccccttata catgaaatca 360
 accaacgctt gtaattccca aaacctaaca tctttcaaaa ttataattgg atgctggcaa 420
 ggattttctc ccagtagact ttcaaaaaat ccagaacaag cggccaaaac taacctatga 480
 caagttagt acgccttcca 500

<210> 87

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 87

atttttctga caacagactt taaaataaca tttaaactgt ccgattcaat ttttgataa 60
 aaatgaagac aattatagtt ttcgactaa ttaccattgc agcttgcaaa gggcaatcta 120
 cttgccctaa ctttaacgat acacaacatg acactggcag aatcgctctt atgaagaaat 180
 agttgatttg ccacagaaac cagaagtttt acttattgat gttcgtcaac cggaggaatt 240
 ggagcaggaa ggaaaaattc cgacggctat aaacattcca ttacgtgaat tggaaaatgc 300
 tctcaagaac atgtctcttg aagaattcaa aaccaaattc ggaagagata aaccaacatt 360
 cgatactgaa atcatTTTTA gttgccgttc cggaaaacga gcaaaggaag ctatggaaac 420
 agcattggga ttgntataaa gaaatcaaga tctacgaagg tagctTTTTA gaatgggcac 480
 aagcagaaga acagtgaatt gcaggtaatc aattttttat gtcacattta ttacaattga 540
 ccaactagtt 550

<210> 88

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 88

gatagagtgt tcgtcttttg tttaggaagt tacatataat tattcaagat gcctgaagat 60
 acacaaaacg ctggtgatgt cgagacattc gccttccaag ctgaaattgc tcagcttatg 120
 tctttaatta ttaatacatt ctactctaac aaagaaatct tcttgcgaga attgatctca 180
 aattcatcag atgcttttga taaaatccgc tatgaatccc ttactgatgc atctcgcttg 240
 gacagcggca aagatctcca catcaagatc attcctaata aaagtgaggg cacgctcacc 300
 attattgaca caggcatttg catgacgaaa gctgatcttg tgaacaattt gggatcaatt 360
 gcgaagtctg gaactaaagc cttcatggaa gccttacaag ctggagccga tattagtatg 420
 attggtcaat ttggtgtggt tctactcggc tattcgtgtg ataaagtcac ggcacatcta 480
 agcacaatga tgatgaacaa tcctttggaa tcttcgcgag aggtccttac agtaagactg 540
 cacttgacc 549

<210> 89

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 89

```
agtcgttcga gtctggttct gtaacaggcg gcaaaaagag aaacgcatga cgccccgaa 60
cacgatgggc agcgacgtct ccgaaagtct cgtgtacaac gcggcctacg accagaactt 120
gggccacagc ctggtccaca agtacgagga catgcccggc ggaggcggag gcgcaaggca 180
cttgatgac acgggacgac acctggaaca cggcgtgtcg cacctgggac acgaaatggc 240
caacaagttc gaagggcacg acatgggaca gaacctggga cacaatttag gccacaatct 300
agttcataaa ttcgaagacg gcagcaggca catagagcag aacctcgagc ctagttattc 360
ggaagcgcag agtcctggca attagcatag gacgtgtaaa tacgtgagtt agggacataa 420
attcaagtga ctgattagtg actgaacgat gttataaatg acaacgtgag tgcgaaaaca 480
aaacgtcttg acgaagaaat atcgttaaag taaaaaaaaa acaaacaat gaaataacca 540
ggggtaaaa
```

<210> 90

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 90

```
acaagttccc gaccggtcgc ttcgcaaac ggattctaata taaaatttag tgttttaaag 60
caagtgttac gtgttcttgt gagtgtttat tgtgtgcaaa aatcgcgccg agatgtccga 120
caacaaagga gagaacgcca catcggaatc accgaagggc aaaccgggca gacgaaacag 180
agctttacaa agaataaaag aagaggggtga agcactaatt aagtctctag gtggaacccc 240
tgaaattgaa ggcagaaggc gtactaggtc ttcactaaaa acgccagcaa cccccagc 300
tacgccccca actcccacga aaaaggcaaa atctacacca gcacccaaag gcacaaagg 360
acgcgggagg ggaagaaaaa gtgaaaagggt ggaggaggcc gaagaaaagc aagaatcaac 420
agaacaagaa gacgaagtag acgaatccaa tgcacttact aaattcacct ccgaagacaa 480
ggccaagtag aacaaaatgt aaaacagaag accttcagaa gaaccgcaa ctgatgactg 540
ttaatccga
```

<210> 91

<211> 251

<212> DNA

<213> Ctenocephalides felis

<400> 91

```
actcttcca cagtgagaga aaaagtttaa gttctattca tcggtcgtct aaggaaacca 60
ctcatcagca gattgaaact caatctaata cagcaataa acaccaagta tcatcatcta 120
acgctaccta cgttattgaa cgcccgcaga aaaccgttcg acgcgataat ctgttaactg 180
gcggtgaatt ttatggtcaa aaagattcaa ggtatggtaa tttttctaata tgtgaacaaa 240
gtctaagaag t
```

<210> 92

<211> 375

<212> DNA

<213> Ctenocephalides felis

<400> 92

```

actccctttg cgccatgaag atttcaggcg catttcgagt atcaagtccg ccttccatgt 60
ccagaaggtc ctggtgttcg tcctgttcgt ctgattcgga tgagtcgtcc agttcgtctc 120
cgtctaataa ggacggacaa cggaacatat gtcaccgtc gcacatgcat tgctgagccg 180
cctggtagtc gcggctgaag gctgcggtgt tctcgaagtt ctcggtgcaa ccatgctctt 240
ctgttaatcc aacaggacag ggattagggtg gattacaata agcgggcaaa ttatccggtt 300
ttacttgctg atgattcatt gcacttncat ctggtttgag cctttgttgg ccttcaccag 360
cgctncact tacgt                                     375

```

<210> 93

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 93

```

gcaaaagcaa tgactgtatc aaatggcaat ttagtagatg ttagattttt tggagcacat 60
gataaagcat ggatacctat gaaggattgc ttgctttata gtgagaaaga tccaaatttc 120
agtataaag gaaaacgctc tgatttcata gaatcactta gggagttagc tatatatgtg 180
aaaaatcttg agcaaaaatt tggaaaattt tgtcatgcac cattcaaaac tccatatact 240
aatgatcaag cagctattta tagtataatg ttaccttcac ataaattcaa atcagatatt 300
gcaataaaaa aaataataac aaaacaaaaa gtttgtgaca taacggataa actactagag 360
gacacaaaag gtaacatgaa aataaataat tcgttagatg aggatagtta tattgaagga 420
tatgatactg aagatgagga agcactaaaa gatgtatcaa atgaatctgt gatatgtaat 480
gatatgaaa ttaaacaac ccttgctgctc cgtgttagaa tgagagnggt aaataattca 540
caggaaaata                                     550

```

<210> 94

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 94

```

aacacaccaa gagtacaaca ttcgtcgtgc tggatatttg acattattgt atacaaatat 60
agcggcacac gatcgtatct attcgcgaag ttttgacaca ttcagcagat ttttgatac 120
atacagcaat tcaggagtta tccgctgagg aaatcaattt gagcgcaatt agacgatcag 180
atcgtatacg aatcaaaaat caattaattg gcagtgtatt tgtcaggcca ttttagttaa 240
cggcgcgctg ttgttatact ttttaacttg aaagttttct ccatcgatag ttttcgttaa 300
tcaacgtgag gaaaagttct aatcaagatg gcagtagcag cagcacaaaa gaaccgcgaa 360
atgttcgcta tcaagaaatc ctacagtatc gagaacgggt atccatccag gcgcgggtcg 420
ctggctcagc acgcgcgttt cgagaccctc gtagtcaaac agaccaaaaca gtctgtcttg 480
aagaagccgc cagagagcac gattcgagtc tcgatggcaa gaccatggac agatgtatat 540
gatgacaag                                     549

```

<210> 95
 <211> 240
 <212> DNA
 <213> Ctenocephalides felis

<400> 95
 acttgtaaca attgagatgt taaacgcaat gaacagtttg tctgaaaatc aatctcttct 60
 tgctatgccc ccatggcaaa acatgtgggt ggtaggatcc atggctctct ccttcactct 120
 tcacttcgtc attttacatg tagaagtttt atcagctgtt ttccaagtaa ctccattgtc 180
 tcctgatgaa tggatcactg tgatgaaatt ctctattcct gttatattgc ttgatgaagt 240

<210> 96
 <211> 431
 <212> DNA
 <213> Ctenocephalides felis

<400> 96
 acaataggaa gacatagatt tacgatcgcg agagaattcg agagtgaact cttttttcca 60
 tttggtttca atttcctggc ggacggcgat ggcagcagaa cgacggtcta gtccttgttt 120
 agaaacattg aatggattca ttttttcagc caatacaatc aaggcgggtt cggtagcttc 180
 accgactttt tcgaaagctt gtttgaattc gttgaaatca atagcgggaat cattgcacat 240
 gatacagatt gttcctaatt catgcagggt gtcaaattcg ctggccttaa ctttagcacc 300
 tttcaagtat acatcaccaa ttggttcata agtggatcca gtgatttcga attcagtga 360
 actgctatcg ctacctcaa ttttgtcaaa gacaaacata cgagatcaga catctgatta 420
 gtggtcaaag t 431

<210> 97
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 97
 actgcgagac actaacaaaa ctcaaaaaag ccattcaaaa tcgccggaga agaagaccga 60
 gcaagggcgt ggcggcgaag ttcttcgaag cgggttttca aaagtgaaaa actctttaga 120
 aaaaatgcga tgaaagatct ggcgactatg tagaaaaata atttgaaata caagctttcc 180
 gatggtatac acatttattg caataaaaaat gcctcaaccc tgaaaaaaat gtgggaacct 240
 tactttttgc atgaccctcg tatgatttca aaaaattgag aatgtctatc gatttgttac 300
 ttagacgtgt cctttgttta caatatttcc caaaatagaa aatactctct tacttgcgac 360
 cgaacttgat tggtgttaaa gcctgatata ctaattctat atacactggt ataaaacct 420
 aattaatata tacattagac aaaggataac acaaaacttt tctggaagcc atagcagact 480
 gataagattc caaatgctga 500

<210> 98
 <211> 350

<212> DNA

<213> *Ctenocephalides felis*

<400> 98

```

acgcgtaata ataaaaagag agaaaatatt taaaataaaa atatttaaatt ttaaaaaaga 60
aaagaaaaac nttatcaaaa ttattaaaac caattcatta ttgcatcatc ttacaaaaag 120
acccgaaaat acacgacggt aaaatatgaa ataagaaaaa aaaactctac taatactacc 180
aaccaattac tctataacta tttattatac aacaatccag ctggtcagat atgaatagca 240
tgcctatggt tcaactatgt gaaaaaaagt aagtccttgt taaactaaca aatccgattc 300
ggcactgtct gcctgggtca aaaaacttcg gctctctgca cgcgtttcgt 350

```

<210> 99

<211> 200

<212> DNA

<213> *Ctenocephalides felis*

<400> 99

```

actgctgtag ctaaactctgc ttctgaaatg gtgttagctg atgataactt ctcttctatt 60
gtcgtctgtg ttgaagaagg tcgctgtatt tataacaaca tgaaacaatt catccgatac 120
ttgatttctt ccaacgttgg tgagggtggt tcaatcttct tgactgcggc tcttggtctt 180
cctgaagctt taatccctgt 200

```

<210> 100

<211> 273

<212> DNA

<213> *Ctenocephalides felis*

<400> 100

```

catcttacat ctaccgggac atcatagcta caaaaaattt ctttangata acaacaatt 60
attagtgtgt aaggcagata aaggaaacat ttcagtgtgt ttgttaaaag aggaatatga 120
taaagaagca aagaaaattc tcagtgtatga atctctatat gaagaattgg catcgatcc 180
gaacaactat caccatagac aagtttttaa atttataaat ttattagaga aaaagggaca 240
tattaataat accatatcat taaagttaaa agt 273

```

<210> 101

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 101

```

aagaatatga acaaatagta gtagcaccag ttcaccctgg tttagatgta caggaagcac 60
aactaaatga agataatgag gatttcgcat caaggcgtcg ataccatcaa tcagctactg 120
tgcatggaca ttacgtaaac attgacggat agttgtttta attaatgac acctaataca 180
tatttgacca gtattgcaaa tttttgagtc acaaagctat tgatttagat ttttatatat 240
ccttataaaa gctatttcta tgggtataatt tatttaattt aacaaaaatt tgcaatatta 300

```

```

gcttgatattt taaaaagctg attaaaattt attgtgaagt atctaattta ttaaaaaaaa 360
tctaataataa tgaataatat agaaatgaat gaaaaccgac tcgagtgcag tcaacattac 420
tgataatgtg atttgatgca ttttgcttta ttaaaggcta aattagttca aaaaggccag 480
tgtttaattt aatatttatc acttatttaa ttcaaataat taatcactcc agttgtatta 540
taaataatgt                                     550

```

<210> 102

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 102

```

agcaaccgac gctggcgctg tttgaacaag acggttttaa acgattttta tattcaccta 60
aagatttcta taaaccattc tatgaatggt tagtaaagca accacattcc aaaattcaag 120
tacagccgaa cgaagtttga tttgttaatt agtggttttg tgcacattga ttggattgaa 180
aagaacgccg ccaagagcgt aagaagcaat catggaggac gcacatgcga aatccgtgga 240
cgaagtctta ggatatttca gtacagatcc tgaaagggga ttgtctactg atcaaattaa 300
aaggaatcaa gctaaatatg gacctaataa acttccaacg gaagagggta aatccatctg 360
gcaattagta cttgaacaat tcgatgatct tctagttaaa attttactgt tagctgctat 420
tatatctttc gttctcgccc tttttgaaga gcacgaagat tctttcactg cttcgttgaa 480
cctttcgtea ttntactgat ttgatcgcta cgctatgncg gtgttgccan gaaagaacgc 540
tgaatcgcta                                     550

```

<210> 103

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 103

```

gcttctattc ttaaggttta aattcagatc aattctatat ttaaatttca gaacaatctt 60
gagcctttat catgccttct gatgccaaaa aacgtgaaca gcaacgcaag aaggagcaag 120
cgaaagccag acaggctggc aaaaaagttg caactaaaaa tggatgaaga aatgacaaag 180
aacatctcc agccccaac caaactaatg gagtgaagaa taatgggaact acagagctct 240
ctgcagaaga aattctttgt gcgaaactgg aagcagaagc aaaattgaat tctgatgcca 300
ggctctgcac aggatcttta gctgtccatc cagctcaag ggatattaaa atagctaatt 360
tttctgtaac tttctatggt tgtgaattgc ttcaagacac tcttttagaa ttaaattgtg 420
ggaggagatt ggtcttttag gccttaatgg aagcggcaaa tcatcactat tgctgtcttg 480
gtatcgtgaa gtaccaattc tgacatatag acatctttca ttaactagag aaatgctgta 540
ggntaattg                                     549

```

<210> 104

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 104

```

acacaaccaa actgttaatt ccctgcagcg cctgctgagg gacgccagag gttctataac 60
tttcaaaatc gttccatcat acagaagtgc accgcctcct tgtgaggtaa gcgccgcac 120
tgatgcaatg cgttttattcc ggattaggcc tacacctgna ttagtatttg ngcgtgccc 180
gtttgactat gatccttttg aagatgattt aataccatgt gctcaagctg gtatttcctt 240
caaagttggg gatattattgc agattatcaa taaggatgac tatcactggg ggcaagcaag 300
aaaggatgct gtcgaagggt ctgctggatt aataccttct cctgaacttc aagagtggcg 360
aatagcaaat gcggctcttg aaaagaataa gaacgaacaa gttaattgct ctatatttg 420
aaaaaagaat taaaatgcc gagataaata tcttgcaaaa catatgctgt tttgatggat 480
ggatcttgnt acctatgagg                                     500

```

<210> 105

<211> 248

<212> DNA

<213> *Ctenocephalides felis*

<400> 105

```

accaagtaac ttttaccttc ttgtcagaag ttttcaaact gcacataaac tctgccgatt 60
taccttcttc gatagtaaca tcaacaagtc ctttaacaat ttgtggtttt tcgccttttt 120
ctggttcagg atccggtaaa tctaagatcg ttacttcttg tgatgttgcc tcgccctttt 180
cattctttac aaccaatttg taagtacctg ccnctncnc ttcnncnnanc annngtgcca 240
tnantcan                                     248

```

<210> 106

<211> 494

<212> DNA

<213> *Ctenocephalides felis*

<400> 106

```

accgtcgtct tgtaaagtct gtgaatgata ttgagaagcg tttcctttc tctcaccacg 60
atagattagg tttcctcact ttctgtccca ctaacttggg aactactgtc cgtgcctctg 120
tgcacatcaa ggtccctaag ttggctgcta accgcgcaa gttggaagaa gttgctggac 180
gttacaatct ccaagtctgt ggaactcgtg gtgaacacac tgaagctgaa ggtggtgtct 240
acgatatctc caacaagagg cgcatgggcc tgactgaata ccaagctgtc aaggagatgc 300
acgatggcat tgctgaactc attaagatgg agaaagaaat gtaaactttt cactttttatc 360
atcagactat tttttgtgat caaataaatg gtcatgcgat agatattggc aaagattcta 420
tcagtatttc tatttttaaat aataatttat attatattgn tacaactttt ttttaataatt 480
taatttttat ttgt                                     494

```

<210> 107

<211> 445

<212> DNA

<213> *Ctenocephalides felis*

<400> 107

```

acgtaaacad ccatacattt agggcagtag gactttacca tagcctctcc aggcacatca 60
gaaagaccta atggcagcat aggctgacta tcgcagtaaa ctctagggca atatccgaag 120
tctccagatt ggtatttttc tatcatttga gctatacctc tatttggtta aatatatctg 180
gcggtgaatta gaccatataa catctctgca gcctgttcta ttgcatctga ctgatttgga 240
ttatcatcta tttcatcatc aggttctaaa tctaataatca tatccaaggc ttgtctatat 300
cgtggaattt gctcatatag gcctgttaga ttgaatttat cctgtatata gtcttcatcc 360
acctcgcaaa agaattcatt tcctcgtaga tcacaaaacc aagatatcca tgagacctcc 420
tcagaactgc tcattttcct tttgg                                     445

```

<210> 108

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 108

```

acaatcgggc acaaccaaag cataatacaa caaactttca tcgtaataat taaatgatta 60
tttctatcac ttaccgaggc atttttcgca taaaacagag tgtgtccttt cagcctgaaa 120
tatcgccctc tccatcgctg taaggaccag gtctgcttca tgagaaatcc ctctctgggt 180
gcggcctgcc ggaaattaac agaaatcctt gtaatacaga aatgtgacaa gaatatitaa 240
attggagttg acagtatcgt aatgaaatat cttgggcatg aaaagcatte gaagatagtc 300
tataatgggt ttaattcaat cagtttcaaa aaataagaat cttgatatcg atataaaatg 360
acaaaagctc tactaagatt ttttcttcag tataaaaaaa taatataaaa ttgttagaat 420
actttacata tatcgcataa ttcttaacac aatataaaaa tgaataatcc aaggnaacga 480
acgtatttaa tctcttacac                                     500

```

<210> 109

<211> 343

<212> DNA

<213> Ctenocephalides felis

<400> 109

```

caaaantgcg tctgaggagc tgnntcttaa tttattcata atatcaaaat agttattnat 60
ttgcaaattg ntggtaattc actcgcggtt gtttatttat aattatatct ggntttcttc 120
tcgatttgct atttaacctn tagcagcctt ttgcactttt gctgntggta ataatttcct 180
atccgtaaca acacaatggg aaactgggaa taatccgtcc ttaagcacac atacgcaatc 240
actgtgcatt tcagttctac taatttggtc taccaaactg tttgatacta cactgatgaa 300
gttcttggtt tgcttttggg ctttagcgtg ttggaagntc tgt                                     343

```

<210> 110

<211> 491

<212> DNA

<213> Ctenocephalides felis

<400> 110

```

actcctatcg tttgtaacat ttacattccc ctttacttta ttattttcat ctctgctac 60

```



```

gatctgcgat tcatttgaat cttcaatatt taaattcgct ggagcatttt cgatttcttc 120
aagagccgctc aacgctcgca gttcttcttc tatcaatttc tttctagcag ctattgcttc 180
aacgagagctt atactttccc ttttttcaca ctgcgcgctt ttccttgaac gaaaactgcg 240
tctctttcga ctaccgagc ctcttttcac ggttctggaa atcccatcca aatttcttaa 300
aaattcctcc tgaggcggtg caccagggtg agaccagggt gaccaggatt tgacgtcctc 360
ctcttcgtct ccggaatctt ccacaacttc cgcctttttt agcttttctc ggacactcct 420
cgtgtaatcg gacaagtccg gacttgctcg accgcaaate gaaccaacac acagacaact 480
cgcttttcaa c 491

```

<210> 111

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 111

```

acggaaccga tgggaatgta aacaaaattt atacttattg ttaaaatctc tctaaaatat 60
ctgataattt gatgtgcata tgtctaataga tcatttttga ccgccaatg gcacattttt 120
ttactttttc ctccatatct ccaaagtcgt tggacctttc caaaattttg aacagtttct 180
catttagtca atacaaataa aatgtttttt aaattattca aatcggagcg tccgttctct 240
taaaaaactga gttaccgttt tcggcacttt ttgcccgtga tcttcggaac ggctagacct 300
acctttgccg aaaactaatc agcacgtctt cttatcaata tgaatcgaat gttttttaaa 360
ttattcaaat cggttgattc gtgttcccga aatcgtcgac gaaaatttgt atccgcacat 420
acatacatat acacacatat acacacacac acacacacat ccatncattt ttctaaggat 480
gccaaaatgt cagaaacctt 500

```

<210> 112

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 112

```

acggtaaaaca atgtatccaa gattcttata catatttatt gctacttcat tactaactcg 60
aacaacacag tcaacaaaat atgtattttt tctttctgat acatcttcta agaaattcat 120
taatttagct gctaagccaa gtctacgaaa atctggggaa acagttaggg ctgtgacatg 180
tccatgccaa ttttctccat gaccttctgc ttgcccatt atatatcca ttatttctcc 240
gtttggggac tcagcaactt gaaaatactc tggccaatgc gctagatatt gcatgtagaa 300
tgaaagtcca tatgtttctg ttagtgatc taaatttaca ttattaaaat taaacatatc 360
attgcaagta aacggtctta atgtagtcat attaattnta ttgcaaaaga tatcagaagg 420
aatttaattt acaaaagtca cgcctttaat gaagtaaaat attcagagaa aaaataaaac 480
gagttactaa tatttctact 500

```

<210> 113

<211> 256

<212> DNA

<213> Ctenocephalides felis

<400> 113

```

cgatcatttt caaatctaga taatcgacaca cattggtgaa acttcacatc ctcaagttcc 60
acagatnttg acttaccctt gcctgtgctt tcaaatagaa ctttatcatt taagcctaata 120
cttaattctg gcattcctga tagatataact ctcatcttga tagcaccgac aatttcactt 180
cttagaacat tgccatttac atttgccaaa agatttacgg attctattac atctaaaaat 240
acttcatttt ttcggt
550

```

<210> 114

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 114

```

ataaggataa aaagaaaagg aaaaaggaga agaaagagaa gaaattgaaa aaattaaaga 60
aaaaattgaa gaaagaaaaa ctcaagaata agaaaacaga agattcagac aaaaagaata 120
aagatacgaa aagtctcaaa aatgtggtat cctcatcctc ttcacatctc tcggaaagct 180
ctgattcaga tgatgagaaa tcatgtatcg gtccagtgcg aaaacaaagt gctggtctta 240
gtcataagga ctttgacat gcattgttac ctggtgaagg agctgctatg gctgcatttg 300
ttgctgaggg aaacgtata cctagacgtg gtgaaattgg tctcacgtct gatgaaatcg 360
cgcagtatga aagcgtcggg tatgttatga gtggaagcag gcacgtcgtg atggaagctg 420
tcgtatccgt aaagaaaatc aaattttatc cgcggatgaa aaacgtgctc ttgctatgtt 480
cagtaagaa gaaagacaaa acgtgagcat aggatcttag ncagttaaag agatattaat 540
tcaagtatcc
550

```

<210> 115

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 115

```

attnagagta gcagcttcaa agatcaggcg ttncacagaa ggtacttcga cgtcttgga 60
gatccagaag ccaaatacagg agtagtgca gcgcgcaatt caccagtcatt ttgaccaa 120
gtgggagctt tcaaagagta gacgaaggcg ataccagttt ccaaggggaa ggcaatggg 180
ataacatcgc ggttgtaaaa ttagtggaag tcgaaagatt ttccttgacg gagagattcg 240
gcggcggagc ggatggcttt gggcaaagcg ttcaagggtt ggttgctgaa agcaaagaat 300
ctcttggtgt tcaacatgcg agtggaatg acagcttcca atttttcagc ttcttcagg 360
ttcatgttca acattttggc gattttttca acagaccatt tgtcttcaga agagtggctg 420
ctttcgtgtt cagatttcgcg gttcttgaat tgagcagaaa ctacttcaac caatctttca 480
acactggaga ccatggcgta gacatcggag tatctttgtt tgtatccggc gaagtcagct 540
tcaagcttg
549

```

<210> 116

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 116

```
gcgaagagag ttagatcact gtagaagaca gatttcagaa cagtccggtc aaatatctcg 60
tttacaatct gagttaagta ttagccaaaa aaatgaagga caatatacaa caaaattagc 120
tacagctttg gaaacagttg aaaaaaatat ggacacggagc aataaaaggg caatagatgc 180
tgaaagtaca gttgcaaagc ttaagaaaca gatttcacaa atgacgtcag agatgatggt 240
tcttcgaaat gaaaatacat cactgcgcta tgggccagct gcaaatgatt ccaatagcat 300
gatgagatta tcaaatgagt tgcgaactgc agctagtact gcagagtcgt cactgaggca 360
actattaacg ggtgttgata atttaaggac tctttagtct ctttagaaaag ctctaaccga 420
atatttgaac cttctgatga caatttctgc gaaaatgaag atgaagatgc cggcctgact 480
ataatgtgta gtgaataaat ttntcattca aatgtcttgt attaaaataa atattctagt 540
ttatatgct 549
```

<210> 117

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 117

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gaaatataga gaagttacta agaaaactat ggtaaacag tttgaatgtg ttaaggatca 60
cccgcgcca aaagctgtgt tctttacttg tatggacagt agaagatgac ctacaagatt 120
tacagaaaact aatgttggtg atatgtttgt tgttcgaaat gctggtaatt tggtagctca 180
ttcccaacat tttttggatg aatatataag tgctgaacct gctgctttag agttaggttg 240
tgtagtaaat gacattcggc atataattgt ttgcggtcac agcgattgta aagcaatgaa 300
cctgctatat aaacttcagg ataatgcttt cgcttctcag gataatagga gaatatcacc 360
actacgagca tgggtatgtt cgcagtcgca aagcagtcgt gataaatttc aacaacttgc 420
tcttagtgat tataaaacac ctcttatttt tactgctgag actcctttaa gaaaatttgt 480
ggttatatag atcctgaaga tagttttctg tgaagacaaa tatcacaggt aaatctctgc 540
acaactcaa 549
```

<210> 118

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 118

```
cacaacgttg agttatcctt gtaattgcaa gtgcatttaa aaatataatt tgtttggcat 60
agaatttgtg aaaaaacagg agcataaata tgctttcaaa cattcggatt caaataaaaa 120
ttgcccgtgt acgagaatta aaagatctgc gttatttttc ttcttctaca acaaatctcg 180
ctgaacacaa atgtcgggta ttggtggctc gaggcggctc tggaggatgc accatggcat 240
caaaactttg ttcacatttg cgacaagatg atgtcattgt attagagcct agtgatgtcc 300
attattatca gccaatgttc acaatgattg gaggtggcat gaaaactttg gaacaatctc 360
gaaggccaat gtcttcagtt ttaccaaga aggctcgctg gctaaaagat tcggcgaaaa 420
cattcaaacc gatcgaaaat tcagttttta catcatctgg tgacaagata acatacacta 480
tctcgtgtgc tgtggttgaa acttnttacg caagatcctg gttgtaaaag ctttgctcac 540
```

caaatggca

549

<210> 119

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 119

```

aatatgtgtt tactatttaa tgatactgta agaaaaaacg atacgtacgt aattctgaca 60
ttgactgtca ttaataatgg gatatgactt tcgaggttat tattgagaaa tgaaaacgta 120
gcatttactt atagtacgtt atatggtttt tgattggttt aaataaaacta aataaaatga 180
agtgaacaa taacgatacg aatggccatt caaaaaggca tttggaagcg aagatctccg 240
aagctgaaga ggtaatagaa aaatctttat ctcaatgtga ggcagatgaa atttttatgt 300
ctttcaatgg gggcaaggat tgcactgttt tattacatat actccaaaga gtttataaac 360
ttaaatatgg ttctgatgca cctccattac tctgtttata tgtgagacct aatgatcctt 420
ttcctgagat agaaagtttt gtgctgagtg caaaaatctg tccccataaa tctaatacat 480
tttctcttcc ttaaaactgc tttaaaagat ctgcagtgcg nacctcactc aaactagttc 540
atggatnccg                                     549

```

<210> 120

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 120

```

gactaccaaa tgggtgttcaa gctcaatgtc gtgcctttgt tgatacatat ggagatgcct 60
ttattgccat atttgtgcaa gaattagatc catcgaggt gtgtcccaag ttatctttat 120
gtccaaataa agaagttgaa gtgtttgaac aagaagatac cagagacaaa ccaacttgct 180
ctatgtgtct aatggctatg tttgaattag aagagaagct taaggaggat aaaaccaagg 240
cagctgttga gcaagcacta tctggattat gcaatcatct ttctgatcat ctgaaacctg 300
cttgcttaac cttagtaaat acttattata atcaattagt tgaaatgctg atggctgatt 360
ttaaaccaca agaaatttgc gtgtacctaa gattatgcca tgataagaat cccgacttaa 420
gtgaattgga tattcttgtg cagtaccaat taataagacc catgattaat gcaaatgaaa 480
tattggacac cacaattaat ggcaaaccat caggtgtgtc aaacaactta ttctgaaaat 540
tttgccaac                                     549

```

<210> 121

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 121

```

gcataatgat aatccacatg tagaaaaaca aattgttgag ttaatatatg atgccgtact 60
atttgaaaac ttgtcaaaaa attataaaaa taccgcattg tggcaagaaa tttttgtttt 120
gccattctac tccctatata aggagaattt gataaaccta atagacattt tacatataga 180

```

tacaagatat gcaattgaaa ataaattaca ccaagcagcc agggcaaagg cactgtattg 240
gactcatgca ctttattatt ttgagaagga gttaaagtag tcgtcaaatt ctccaacgtc 300
actaagtttt gatgtagaaa aattatataa aagggttctt tgtaaagaga attcagatac 360
aaccgatctt ggctggatac atatcacaca gatattcaaa aatttaccg cagaatgcat 420
atctgtaaaa ttgatggca aatgattca tggataagtt ccgctggaac caactgtgcc 480
gccagatgta tgcagagtc cgaattacgc gatgattctg tactcnccgt cgagataatg 540
atgtctctg 549

<210> 122

<211> 339

<212> DNA

<213> Ctenocephalides felis

<400> 122

accatggctg atacttcaat tccggcatca ggatggattt ttccatcttt catcactcca 60
agtttcttgn aaacgcaatt gatcatgcat ttctctgctt ttgaatctgg tatgttcttc 120
tgcaataatt ttctgatac atctgaagat gctcctgttt ctacagcaca atctttgcct 180
atctgcaaaa gtttttctt tgccttctt ttggtatagc tctgccgcag aatataaagc 240
gaccagtgtt ccaatcacca agaatatctt cattttgatt ttcttctact tcaaatttat 300
aaaacaattt gnttataatt ttcaaatgta gtatttact 339

<210> 123

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 123

cccgcacacc acacatacat caattttttc tgtgggtgcc aaatattcag aaaactcaaa 60
aacgtaaaga tatataaaat ttttcatttt cgattttttg cgattactat aacttgcccc 120
atgggaagtt aataatattg tgtagttatt tatgatcaat actaatatta tgtgtagtaa 180
tcataatca agacttttta tcatttttaa ctttccgtgg ggcaagttat agttatcgca 240
aaataatcga aaatgaaaat ttgatatac ttacgtttc aaaattttct gaataatttg 300
gtatacctta gaaaaaatgg atgtatgtgt gtatatgtgt atgtgtattt ttttatagag 360
gtgcgaaaaa aaatctccat aagcagacaa cgctagacgg tagtgtgaag atttttgcga 420
cgccttcttc ttactactgg ccctttctnc ggttatttct tcaaaggtgc tgtgcatatg 480
ctgctaagct gccagtttct 500

<210> 124

<211> 489

<212> DNA

<213> Ctenocephalides felis

<400> 124

acttaaaacta tgagctattc tgtaactcat tttttttatc tttattttgt aaaccatctt 60
gntcataaaa tttgctaact acgcatttac ttttttttg acctatata tttatctaaa 120

```
tactattcct aactctattc tatctgggcg tgcattaatt gtataaaaga gaaaaaaaaa 180
acagtctaaa caagtaattt ctattatata ataatctcg caaaagaata aagaaacaac 240
agatgtaata cataataatt atatcaaaaa tagtcttact gttattataa aacatttgta 300
aagcgaatcg ggcattgaat ttaaaaaaaaa gaacaattat taaataatct cactatttaa 360
cctatgtgtt atacggtaac tcgccatttt ttttctcgc tttactttca ctttgcaaac 420
tatctctttc ctaaattcta gcgacttatg cattcttcgc tttcgcttat ttcatttatt 480
acatctagt                                     489
```

<210> 125

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 125

```
gattagtttg tagttaataa ttattaaaat gaacgactac ttatcttctc ctttaggatc 60
agattctagt aatttagatg tgccagctcc tattaact ggaaagactg catatcaact 120
ttctccgtat ctaaattata atcctgttta cctgcctgca agccaaccg aatttatttt 180
ccctgaagg gctagtagac aaagggtcg tttgaatta gccttttcgc aaattggatc 240
atcatgtatg ataggagctg ctttgggagg catggctggt acatacaatg gtctgaaggc 300
tacaacattg ttgggtcaaa ctggaagct gcgaagaaca caaatgttaa atcacattat 360
gaaacaaggt tcagctacgg caaatacact aggaacgata gcagttatgt attctggact 420
tggtgtgcta ctgcatggct tcgaggagaa gatgacgaaa taaatacttt aggtgctgca 480
cagcncagga cacttataaa tcacagctga cttaggaatg tncattggtg gaggagtaga 540
tttctatac                                     549
```

<210> 126

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 126

```
ccggataaaa gatatttatt acaatggatg attcctcgcc agatttccat ttcaccacga 60
tcgattattg tgtttttggc ctggccctgt tcgtttcggc cctgacaggg ttgtactacg 120
gatgtaggaa atcaggggat gaatctgatg aaaacaatca gcagaacagc aataaaagaa 180
cagaagagtt tctaaatgga aactccaatt ttaggcctct gccagtggct gcctctcttg 240
tcgccagtta tgtgtctggt gtcacgattt tgggaacacc ttcggagata tttcggtacg 300
gaaccaata ttggataata gtgttgccaa tcgctctgat gagcctagtg gtggccaatg 360
tttttcttcc gatgttctgc aagttgcaag ttcagagttc ctatgagtat ttagaaatga 420
gatttaatcc gtggtgagga cgatagcatc cgtcatgttt gtcatagacg agctttgttc 480
taccaattgt atatatgtgc cagcttttagc ttttaaatcaa gtcaccggtg cgacgtcatg 540
gattgtacc                                     549
```

<210> 127

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 127

```

agattttaag gaacctttac aacctgcgaa aactgtcaat attcagatcg acgcggtatt 60
cagtaaagtt ttagtacctt atccatcaag cataattcaa ctagagcgtc aacttgtact 120
ctatcatgga aatcattact ttactctgc ctatcgtact attaaacaac aaacaactgt 180
acaacttgct tctaagaaca tcgaaagctt ctctaaactg aaaccatttt cacaaagtga 240
taccacaata acttatggct catatgaaaa cataccagca ttactcatg acaaaatgac 300
gattcattat gagaatcata caccgttttt aacagttaca aaattggaaa gaacaattga 360
agtatcacat tggggaaata ttgcggttga agaaacaatt gacatgggtgc attctgggtgc 420
attactgaaa ggtcgtttcc agatatgaat tcaaaaagat tcacgaacgg ttggaagtgt 480
aaatcatata aaacttgctt ccagcttctg attggggtac tccggatcta tggaatattc 540
tcatcaata                                     549

```

<210> 128

<211> 307

<212> DNA

<213> Ctenocephalides felis

<400> 128

```

accattgtgg atgaggcaaa tcccatatac catgatgaag tttgcttgtt tcgaaagaac 60
agttgaattg ttatacactc atgtggttcc caaaccaga gcagagtgc ctaaagggtga 120
acaattgggt gtcacctttg ctgctggtta cattgccggt gtattctgtg cagtagtttc 180
tcatcctgca gacacagttg tttccaagct aaatcaagac aaaggagcaa cagccattga 240
cgctgcaaaa aaacttggtt ttgctggttt atggaaggga ttaggacctt ggatcatcat 300
gattggt                                     307

```

<210> 129

<211> 440

<212> DNA

<213> Ctenocephalides felis

<400> 129

```

nctcctggcc aagaaacaag attggattgc attncatgca aatgcgccag cgatggaaca 60
gggtactttt gcaccgccca agcatgtgct ccagttcacc atcataaacg atcagctgaa 120
gaagtgaag aagtaaccac aacttctttg gcaacgactc catgcactcc tggagagaag 180
actcaaattg attgtaatac ttgcacctgt gccaggatg gctctggata cgctgcact 240
cgcaaaatgt gtttgccagc caccacgat cgtcgacgta gagaagctga aactgaagaa 300
gtcaaagaag tcacaactga tactttggca accactccat gcaaagcagg agagcaaaga 360
caagtggact gcaataacct cacctgtgcc gcggatggaa ctggatatca atgcacccgn 420
caagcttggt agtttgaggt                                     440

```

<210> 130

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 130

```

acatatgatg ctacatccat tttgacagca tttcgtgga ccccgacatt gagcgtctgt 60
atggcattct cgagaacatc tatctttctc atgtccagca acaaaactga ctggacaaga 120
tcttggtttg ttttctaata aaataattat taaaatagat ttattcttct acatttattc 180
taaataaaaa tttttttatt ttaataaaga catagcctat ggaacgaaac ttaccgagcc 240
gacattctcc aatgaaaact gttctaccgg aaacttcac tcgttgcaag tctattccgc 300
atgaacttcc ttcgtgacag cggatatcag aacaaggatc aaagcatgag cattgaacac 360
aattattttt atccacagat ttatgaattc cgtaaggaca acgtaattct tcacacgatc 420
gatcgtcatt gatgcaattg ttaataatat tctctaaatg aaaaaaacia attagcaatc 480
attaaatctt cttaaaaata                                     500

```

<210> 131

<211> 376

<212> DNA

<213> Ctenocephalides felis

<400> 131

```

actaattgtg gccccgccaa tttcaaaaat gttgatttag tttgagctgc acatgcacga 60
gccaataatg tttttcctgt cccgggtggc ccataaagta aaacgccttt ggggtggatgt 120
atccctaaat ttatgaactt ctctttgtgc gtcattggca atacaaccgc ttcaattagt 180
tcttggtttt gcttgtctaa gccaccaatg tcagagtatt gttctgtagg ccgctcatca 240
acctccattg ctttgactcg agcatcatat tcagcaggta atgtttccaa aattaaatat 300
gagtctttgt tgacacctac taaatctcca ggcttcaatt gttctggatc tactaaacct 360
ataacaggta gaaagt                                     376

```

<210> 132

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 132

```

acggaacca tgggaatgta aacaaaattt atacttattg ttaaaatctc tctaaaatat 60
ctgataattt gatgtgcata tgtctaata tcatTTTTga ccgccaatg gcacattttt 120
ttactttttc ctccatatct ccaaagtcgt tggacctttc caaaattttg aacagttctt 180
catttagtca atacaaataa aatgtttttt aaattattca aatcggacgc tccgttctct 240
taaaaactga gttaccgttt tcggcacttt ttgcccgtat cttcggacg gctagacctt 300
cctttgccaa aaactaatca gcacgtcttc ttatcaatat gaatcgaatg ttttttaaat 360
tattcaaatc ggttgattcg tgttcccgaa atcgtcgacg aaaatttgta tccgcacata 420
catacatata cacacatata cacacacaca cacacacata catccatttt ttctaaggta 480
tgccaaaatg gtcagaacct                                     500

```

<210> 133

<211> 235

<212> DNA

<213> Ctenocephalides felis

<400> 133

```

accaccccc  aaaacacccat  taatctcacg  gaacgtttct  ctacgggatt  tgcctttaac  60
gaaggaaaac  tttaaaatag  cgcgaatttc  ggcgtaagt  aactccatgt  ttacacgtct  120
ataactgtta  aacgcaatat  ccaaactaat  catgcatagc  atcgttttgt  aggttatgtc  180
aagacctttc  aaattatgta  tagtattgcc  agatacgagc  tctgtagcgc  tttgt      235

```

<210> 134

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 134

```

acatgtctat  atttgcata  ttattaccct  acacaaatcc  ttttcgatat  aatcattaca  60
tagtatcact  agctcatcat  gttatagctg  cttggttttt  aaaatgcagg  ctgcctttca  120
ggagagattt  tgtaaaattt  atcaccacgg  tatgtgtgaa  atataacaat  tgtgttaact  180
tggtagttaa  caaaatatat  taatcaattc  atgacgtata  gggcctaaaa  tcaaattgca  240
ttgcaccatt  tgaggaanga  aggatattaa  ttaaaccaga  ggttacaact  ttgaatgaag  300
aatcatctta  cngaaaaaga  aagtctaggt  taacagaacc  agntaggtat  ttggagggtt  360
tcataagaaa  aatgggtgaa  atggtaaatg  ncacccaag  ttttattggc  ngccaaaaaa  420
aaatgntttg  canattancc  taaentccaa  attttgggta  ntgnataatt  ttaattttac  480
cataatctan  gggttnaaaa  500

```

<210> 135

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 135

```

ctacgatatt  tctgncaagt  cgaactacaa  ttttgaaaaa  ccattcctgt  gggttgctcg  60
caagcttatt  ggagatccca  acttagagtt  cgttgcaatg  ccagcattgg  tgcctccaga  120
ggtcaccatg  gaccagaat  ggaaacagaa  gatagagaag  gatctgaagg  aggctcaaga  180
aaccgctttg  ccggaagatg  atgaagactt  ataagttact  ttgttataga  caacatgaat  240
gttttgata  ttttgtaat  gaaaatgggt  gggttggaat  tgaataatag  agaatgggtt  300
ctgcaaaatg  tcgtgaaata  attattttaa  cgccagatgt  atttttttat  tcttaatcat  360
ctgnaaagtg  aaaaatttaa  aaatgtgagt  gctgtaatca  tgaatgctga  gtgtaataata  420
acttttttaa  gnaactcgcc  taatttttta  ttataattta  atataatggg  aaccagttgc  480
atccaagttt  cagtggatg  500

```

<210> 136

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 136

ataatagtggt ctattaaaga ataactgctg aataataaat taaacagaac caatggctgc 60
 aattcgaaaa aagttagtga ttgtcggaga cggagcgtgc ggtaaaactt gtttgctgat 120
 tgtatttagc aaagatcaat ttccagaagt atatgtccca actgtttttg aaaactatgt 180
 ggctgacatc gaagtcgatg gaaaacaagt tgaacttgcc ctttgggata ccgccggaca 240
 agaagactac gatcgtttgc gacctctcag ttatcctgat actgatgtca ttctgatgtg 300
 tttttctgtc gactcacctg attcattaga aaatattcca gaaaaatgga ctccagaggt 360
 gaaacacttt tgtccaaatg tacctattat tcttgttggg aataagaaag atttacgcaa 420
 tgacccaaac acaatcaaag agttaagtaa gatgaaacag gacctgtgaa gccacaggaa 480
 ggctgcctg gccgagaaga taaatgcttt gatattttaa tgtctgttaa tcaaaagaag 540
 agtccagagt 550

<210> 137

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 137

attaccaagt accacctgaa ggaaggatcc ttgtgggaca taaacaatta cctcgagctc 60
 tcaccagcac caaacggtga cagaatcgag caaatcagtg caaacgatca cccacaaaga 120
 tcaattagat tctatgttag gaaacttaca agcagacatg tccagacaag gtgttaatac 180
 tgctcaaaaa ggaagctgtg gtgcttgtga caaagccatt gttggccaag ttataactgc 240
 tcttggcaaa acatggcatc ctgaacattt cgtttgcaac cattgcaacc aagaattggg 300
 aacaagaaac ttcttcgaaa gagatggaca cccatactgc gaacctgatt accataattt 360
 gttcagccca agatgcgcgt attgcaatgg agctattttg gataaatgcg taacagcctt 420
 agaaaaaact tggcacacag agcacttctt ctgcgcccac tgttgtcaac aatttgggtg 480
 aaaggttcac gaaaaagatg gtaaccntat tgcgcatgct atttcgattg ttgtcccaat 540
 gtggagatg 549

<210> 138

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 138

gaacgcccac cgagtgcag atttattttc gtattttatt tcggtttatt gtgcaaacat 60
 ttcgatactt ttgaagtatt gagaactgtg aatagtgttt ctgatttatt atttatattc 120
 atcagcgttt gatccaagaa aagccttcca aaaatgagtg tcgctcgcta tgaagatatt 180
 gttgcaggcc ctttggccaa atttttgagc ctttcaaaaa gtattggcgg agatgttgcg 240
 cagcaaaactg tttttgtgga gaatgccttt aaggcacaat tagcttttat cacaactgct 300
 agcactgcat cacaacctgc tctgatgtc ttacaacaat tattgcaacc gaccagccaa 360
 cagatattag cggctcaaga atttcgagaa aagcatcggt catcgaaact cgtgaatcat 420
 ttagcggcga ttagcgagag cattgcgcac tcggatgggt ttgatttccc taccctgtgt 480
 gcatgtgaaa gaaatgcatg atgctgacgt tctcactgcc ggtcttgaag agaaaaggct 540
 actgccaat 549

<210> 139
 <211> 549
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 139
 gccagtgccg ccatgtctga gagcttgaag caactgccag taatctgggt ttaggtgga 60
 cctggatcgg gcaaaggaac ccaatgtgac aaaattgttg ctaaataatgg attcaccac 120
 ttgtctactg gtgatttctt ccgagctgag gttcaaagtg ggtcagatag aggcaagaac 180
 ctcacggcta tcatggagag aggagaacta gtacccatgg acatagtact tgacttatta 240
 aaagaagcta tgactaaggc cttgccca tctaaaggat ttttaattga tggatatccc 300
 cgtgaaaaag accaaggtgt ggctttcgaa aatcaagtga ctcccgtaaa cacaatttta 360
 tatttcgaat gtaagcctga aacattggtc gaacgtcttt tgggacgtgc aaaaacttct 420
 ggccgagctg atgacaatga agagaccatc aaattgcgtt tgatcttcat gccataatg 480
 accaagtgtt ggcctatccc agacagactg aagagataac gcgaaaggca gtgataatct 540
 ttgcggaga 549

<210> 140
 <211> 500
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 140
 gttttatata taaatatagg attaatTTTA aggaatatta ttaaatttat ttatatTAAT 60
 atattttact ccnccggccgc gannangcta gcngtntccc tgnctattgg cggnggcccc 120
 ccnnctctn cnnncncccc tcnctcccn cctcnncnc ccnncntct acntctctcc 180
 cncncnccc nncctttntc tccccnccc ctccnnnnn ctentctctc ttccngncnc 240
 nnnccctc nncctcnc cctcttccct centcnccn nccntcccn ccctcnccc 300
 tntcccnccg ccccnccnn ctccntccc tntctncn ngtcnnnnn ccnctcnn 360
 ncctcnncc ccnctctc ctccctcnc nnnnncccc ctccccctt cncnctcn 420
 ntcgnctcn nctctntcc cntnccnnn ncnccnct ntncctcngc ctccccctt 480
 ntntcccn cctccnctc 500

<210> 141
 <211> 500
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 141
 acaagtttga ttacaatgta atttctaagc atttgataaa agtttatatt gctagtTTTT 60
 taattataat tacaaataac aacataaata tataacacat atgttttata tgttaacaac 120
 attaaacttt ataaataagt attaatatat aagccattaa tatttgcttt agggtaaaaa 180
 cttaatacaa ctccataaaa tataaggcct tgattattca caattatctg atttaaggca 240
 ttaaggtaat tgttgaagtt tatgaattat aaaacttttt actttataat cataatataa 300

```

gttaattgac tgaataaata atttgtttgt ataggtaact atgaccagcc acccggttaac 360
ttatggaaca tttcttgatt caactgttga tttgcatctt tagatctcat tgacataaat 420
atgtaacctc cgataaactc atggatcacc ttgcaatctg ctgataagca tgaaaatatt 480
atgnttttctt cttcgaatga                                     500

```

<210> 142

<211> 285

<212> DNA

<213> *Ctenocephalides felis*

<400> 142

```

acctgngtat ttaattcttc ttattataac atgtttnagt atcataattt naatataacct 60
gaattacgga tatatnacta taaacaattt ctaaacataa aatcatattt acacaaatat 120
tttttatcta ttatttcaat ttagcaaaaa cttctcccaa catttgatta cataaagcag 180
cataaggatt catttccacc aactgatttt ttgcaaaggt ggagcctaag cttgcggctt 240
tgttgaaatc ttcccagact aaatcgtctt caccagtttt tctgt                                     285

```

<210> 143

<211> 198

<212> DNA

<213> *Ctenocephalides felis*

<400> 143

```

accacaggca ttgacacaag gggttaacaca actattgtcg atacaagctt ggtcttgtct 60
gcattcttca cttcctatgc attcgtatcg aaaacactgc ctcaaaggat ctcctttatg 120
atgttgagcag catgaacaaa caggtaaccc ctcattggctt ctagtgcatt gcgcatttac 180
accacaggtg tgataggt                                     198

```

<210> 144

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 144

```

ataaaataat tttaaaaaaa atatttttaa atttattagt tatgtaatnt aaaatgaaat 60
antaataata ataatagtag attagtattg taaaagaaaa attaaaatng tgtataagta 120
aatttaattt attgtatctn gtgtatcaga gtttaatttaa taaaagatat gaagaatatt 180
nttctcgaat ttaaaagggg aatttattat ttaatttaat gnaatataat tattttaaatt 240
aataaattag taatgaaatg ttattcgnnt ttaaagntat ctagnntttt tagaaataaa 300
tttaatttat tatattttaa tatttatatt aatttattaa atatagatat tttaaatata 360
aaatattttt agggataagc ttaaaaaata attattataa attaataaat tatttataaa 420
tttatagggg tataaatatt cattaatata aaaangtata atttatttat aaataaatta 480
aaattagtag atttttaatt                                     500

```

<210> 145

<211> 474

<212> DNA

<213> *Ctenocephalides felis*

<400> 145

```

acaaaaacgc aggaaacccc acgngtgcac ttctataaaa taatatcata gatttgaaaa 60
ctatccgaat ccaaaagtgt taacgcctaa .tatttatatc aaaactttcc caacattatc 120
cctagattct cttaataaaa ctttcatttc attattagaa ccactcgaac tcaagttaa 180
taaaaccatt tcaacattta ttaataattt caaaaacttt atatatcacc attatcccca 240
gcagaagtat cggagcagtc ataaaattct tcatcagaat cttccggact ttcggactta 300
ttttcaggat ttgttgaaag agcattgtcc cggtcttgct gccgagcaac gcagcaattc 360
agcaattgta attgttggtg aagaatacac gtgcgaggat cgggaaatcc gcctccaact 420
cccgttattt tgtgtgatta tcaatcctgt atctcaattc ttccacaaat tcgt 474

```

<210> 146

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 146

```

ttaaaactaa ctcatcngng taatgttaac atttaaacca ttatacattg caacaagatc 60
ctngngngtn ggctccaaag cattttcaca atacgttctc tattttattg atcctgtttt 120
caaaccacaa aaacaaaatg aattagctca agaagggtan atccaaaact tgcacacgtg 180
cctattaaag ctgctcgaag taatgatact agctctgtat tccatgatga tctacttagc 240
aaattcacaa attatgttat gaaaggcgga caaaagggtt tggttagaaa tttaatagat 300
gaagcttttg tgaatattaa aagaatacaa attgaaaaat atcacaaggc taaagaggaa 360
aataagagta atattatact aaatccaaaa gtgatattgc acaatgctat taaaaattgc 420
aggccaggtc taacacttac accaatcaaa agaggagggtg ntcgtatnag ttcctatccc 480
gacactgaga agcactcata 500

```

<210> 147

<211> 347

<212> DNA

<213> *Ctenocephalides felis*

<400> 147

```

caattatggt atttcacctt taaaacttgt attatagcat aatagacaga attatacttc 60
atctattcat cgtttccgca aataaaccaa ttcgaaaatt acaatatatt ttgcataata 120
aaattacata ggaaaaataa aacatctatt ctaattaact tactccaatt tttgaggcta 180
ttttatcagc acatatttca gcaatatctc gacctagcac gccataatat aaccataaaa 240
atagtaacaa aaaacctaag tccatccaag aatgcgcctt ttgattgaag attaaattga 300
ctccagcaaa tgttgccatc accattccat aaccaattat accaagt 347

```

<210> 148

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 148

```

atttttaggc tttaaataac ccaatagatt gtaaaagatg taaaataaaa acactatctc 60
tgatgcttcc acacaaatac ctatttagta aaataaaact aaatgaaatt tattagtatt 120
ttccaaactc atagctcagg caatattata attaatttgg tagaggcagt cttaataata 180
gcatgcaaaa acaaaaataa atattttgta aaaaaactat taaagtgaag aaactgatca 240
atacagttaa actataaaaa aaaggtaca ccttataact aacagccgaa caaaataaga 300
aagaagcact tcattaaaca cttacaggta tctggttaaa tcctctatat caaccagcat 360
gctatcttgg ctcatatgaa gttcatcacg attcattaat aagcccacca actgttcatt 420
aaatatttca acctgtgtat ggagtcggca aacaacaacc tgcaattgag caatcgatcat 480
gctggtcaac aaacgccggg                                     500

```

<210> 149

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 149

```

acttacaact gcctaaatgg tccggtatgt cttntatggt cggtaaaggg tatgaatcac 60
ccaggggcgt aacgtgcctt ggccggggccc catatcaaaa tcggtttggg ggctccccta 120
aagatttttc ataatttaaa gaaacataaa gagattaata aattcattta ataaaattaa 180
aagaagattt atttatcaaa ttttcaaata tacatcgaat attattttta atattttaca 240
agtaactaaa attaaatatt cactctcctt gcctttttat cagcaaactg atttattaag 300
tcatttatag ctgatgttgt ttttagtttt tctaattgtt ttgcctctat ggacaataga 360
gacagggtctg atagacgttc ctgttttatt gatgttctga gataattttg gattaatttt 420
aatttttga aactcgtttc agcagttgcg gttgtaactg gaagggcaag aataaaatgc 480
aagctgttat tacatccgga                                     500

```

<210> 150

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 150

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gctaaaccac gtgtttatta atgtataaat tattattaaa caagttttcc ggaaatatat 60
tgtagatcaa actaaacagg aataaaattg aataatacac aatgggaaaa ctgaacgtat 120
caatattacg ttatttagac aaagaagact ttccggtttt gacggccatt gagatgggca 180
tgaaaaatca tgaactggtg ccgggatctc ttacagctct gatcgcaaat ttgcgacatg 240
gtggtgttca caaaatttta agagaacttt gcaaacatcg gttgctgagc tacgaacgtg 300
gaaaacatta tgatggatac aggctgacaa atatgggcta tgattatctg gccttgaaag 360
cattaactat gagaaacgtt gttgagtcac ttggaaatca aattggtgtt ggtaaggaat 420
cgaatattta tgttgtagca gatgaagaag gtgaagcctt atgtcttaaa ctcccagatt 480
ggccgaacat gctttcgagt gtaagcaaat agagatatca tcacatagca tagagctctg 540

```

gnttattatc

550

<210> 151

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 151

```

ggaacgtgca acatatttag ttatttaa attttgataa ttttaaaaa atggcaacca 60
ttgttcgcaa aatcatcagc accaaagctg cagccaagcc agtggcccca tataatcagg 120
caattttggt cgatcgact ctctacgtat cgggatgtct aggattggac gcctgcacaa 180
tgaaattggt cgcaggagga gctgccgccg aagcaagaca agctttgacc aaccttggac 240
atatcttggc cgctggtgac tcatcatatg accgtgttgt gaaaaccacc gtcttacttg 300
ccgatttagc tgaccttgca gctgtaaatg aagtttatgg acaagtgttt acacatgacc 360
accctgccag atcctccttc aagttggagc actaccaatg aatgctaagg tcgaaattga 420
agtcgttgca gtttcaggag acgtccgaac tattccggag tggaatgcta agaaagtaag 480
aataatatca taattaatag tggttcagtaa attatagttt atatgtaaat aattaactac 540
catagtttt                                     549

```

<210> 152

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 152

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acgaaagatt tcgatggggc ggagcggggc agatggagga cagctacgaa gcggctttac 60
gacgaggact gccctatccc gtccttacgg tcgctgaata cttctcgctg ggacaagaag 120
gattcgcttg gggaggacaa tatagagctg cgggatatta tgcttcgatt ttacttggtta 180
cggcattggc gtgttggtctg cttatgaacc tgctcctggt agctgtcccg cgatatggag 240
cctatttgat gtttacgact gggcttttat tggtgccac ggatttaggc tactatctga 300
tggtgccagc aaggcctcta cgaattgtac ttgaaggcgg agcgtcgcg tttcgattag 360
gatggtgctt ctggttggtc ttagttgctg gaagtatatg ctcatcttcc ggattagtaa 420
taacgtgcgt ggatttggca tttctcaccg attttcgact gtcttgaggt gactatgac 480
tccntacgat cgnaoqttat attgaagaga cccgacacgc ctcaggaaac gcacagtggc 540
gnaacngcg                                     549

```

<210> 153

<211> 633

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (67) .. (507)

<400> 153

agtaaatact acatttgaaa attataaaca aattgtttta taaatttgaa gtagaagaaa 60

atcaaaa atg aag ata ttc ttg gtg att gga aca ctg gtc gct tta tat 108
 Met Lys Ile Phe Leu Val Ile Gly Thr Leu Val Ala Leu Tyr
 1 5 10

tct gcg gca gag gct gct aaa tat act aaa gaa gaa gca aaa gaa aaa 156
 Ser Ala Ala Glu Ala Ala Lys Tyr Thr Lys Glu Glu Ala Lys Glu Lys
 15 20 25 30

ctt ttg cag att ggt aag gat tgt gct gta gaa aca gga gct tct tca 204
 Leu Leu Gln Ile Gly Lys Asp Cys Ala Val Glu Thr Gly Ala Ser Ser
 35 40 45

gat gat att gaa aaa tta ctg caa aag aac ata cca gat tca aag cct 252
 Asp Asp Ile Glu Lys Leu Leu Gln Lys Asn Ile Pro Asp Ser Lys Pro
 50 55 60

gga aaa tgc atg att aat tgc gtt tac aag aaa ctt gga gtg atg aaa 300
 Gly Lys Cys Met Ile Asn Cys Val Tyr Lys Lys Leu Gly Val Met Lys
 65 70 75

gat gga aaa tac cat cct gat gcc gga att gaa gta tca gcc atg gta 348
 Asp Gly Lys Tyr His Pro Asp Ala Gly Ile Glu Val Ser Ala Met Val
 80 85 90

cac gaa cac gat tca gaa tta atg gaa aaa gtt aag aaa atc gca acc 396
 His Glu His Asp Ser Glu Leu Met Glu Lys Val Lys Lys Ile Ala Thr
 95 100 105 110

gaa tgt gac agc gaa gcc aaa gga gaa gac gag tgc gaa att gct gcc 444
 Glu Cys Asp Ser Glu Ala Lys Gly Glu Asp Glu Cys Glu Ile Ala Ala
 115 120 125

aaa gca atg gag tgc ggc gtg agg atg gcc aaa gaa cac aac cta atg 492
 Lys Ala Met Glu Cys Gly Val Arg Met Ala Lys Glu His Asn Leu Met
 130 135 140

gac gcg ata cca ata taatagttaa aaatttaata ttaggtcggg tgaagacctg 547
 Asp Ala Ile Pro Ile
 145

tcaaaaatgta gtcgttaaatt tgtagtgtga agttgtcacg atgtgggcgt aggaataaaa 607

tgctatttaa aaaaaaaaaa aaaaaa 633

<210> 154

<211> 147

<212> PRT

<213> Ctenocephalides felis

<400> 154

Met Lys Ile Phe Leu Val Ile Gly Thr Leu Val Ala Leu Tyr Ser Ala
 1 5 10 15

Ala Glu Ala Ala Lys Tyr Thr Lys Glu Glu Ala Lys Glu Lys Leu Leu
 20 25 30

Gln Ile Gly Lys Asp Cys Ala Val Glu Thr Gly Ala Ser Ser Asp Asp
 35 40 45

Ile Glu Lys Leu Leu Gln Lys Asn Ile Pro Asp Ser Lys Pro Gly Lys
 50 55 60

Cys Met Ile Asn Cys Val Tyr Lys Lys Leu Gly Val Met Lys Asp Gly
 65 70 75 80

Lys Tyr His Pro Asp Ala Gly Ile Glu Val Ser Ala Met Val His Glu
 85 90 95

His Asp Ser Glu Leu Met Glu Lys Val Lys Lys Ile Ala Thr Glu Cys
 100 105 110

Asp Ser Glu Ala Lys Gly Glu Asp Glu Cys Glu Ile Ala Ala Lys Ala
 115 120 125

Met Glu Cys Gly Val Arg Met Ala Lys Glu His Asn Leu Met Asp Ala
 130 135 140

Ile Pro Ile
 145

<210> 155

<211> 633

<212> DNA

<213> Ctenocephalides felis

<400> 155

tttttttttt ttttttttaa atagcatttt attcctacgc ccacatcgtg acaacttcac 60
 actacaattt aacgactaca ttttgacagg tcttcaaccg acctaattt aaatttttaa 120
 ctattatatt ggtatcgctt ccattaggtt gtgttctttg gccatcctca cgccgcactc 180
 cattgctttg gcagcaattt cgcactcgtc ttctcctttg gcttcgctgt cacattcggt 240

tgcgattttc ttaacttttt ccattaattc tgaatcgtgt tcgtgtacca tggetgatac 300
 ttcaattccg gcatcaggat ggtattttcc atctttcatc actccaagtt tcttgtaaac 360
 gcaattaatc atgcattttc caggctttga atctggtatg ttcttttgca gtaatttttc 420
 aatatcatct gaagaagctc ctgtttctac agcacaatcc ttaccaatct gcaaaagttt 480
 ttcttttgct tcttcttttag tatatttagc agcctctgcc gcagaatata aagcgaccag 540
 tgttccaatc accaagaata tcttcatttt gattttcttc tacttcaaat ttataaaaca 600
 atttgtttat aattttcaaa tgtagtattt act 633

<210> 156

<211> 441

<212> DNA

<213> *Ctenocephalides felis*

<220>

<221> CDS

<222> (1)..(441)

<400> 156

atg aag ata ttc ttg gtg att gga aca ctg gtc gct tta tat tct gcg 48
 Met Lys Ile Phe Leu Val Ile Gly Thr Leu Val Ala Leu Tyr Ser Ala
 1 5 10 15

gca gag gct gct aaa tat act aaa gaa gaa gca aaa gaa aaa ctt ttg 96
 Ala Glu Ala Ala Lys Tyr Thr Lys Glu Glu Ala Lys Glu Lys Leu Leu
 20 25 30

cag att ggt aag gat tgt gct gta gaa aca gga gct tct tca gat gat 144
 Gln Ile Gly Lys Asp Cys Ala Val Glu Thr Gly Ala Ser Ser Asp Asp
 35 40 45

att gaa aaa tta ctg caa aag aac ata cca gat tca aag cct gga aaa 192
 Ile Glu Lys Leu Leu Gln Lys Asn Ile Pro Asp Ser Lys Pro Gly Lys
 50 55 60

tgc atg att aat tgc gtt tac aag aaa ctt gga gtg atg aaa gat gga 240
 Cys Met Ile Asn Cys Val Tyr Lys Lys Leu Gly Val Met Lys Asp Gly
 65 70 75 80

aaa tac cat cct gat gcc gga att gaa gta tca gcc atg gta cac gaa 288
 Lys Tyr His Pro Asp Ala Gly Ile Glu Val Ser Ala Met Val His Glu
 85 90 95

cac gat tca gaa tta atg gaa aaa gtt aag aaa atc gca acc gaa tgt 336
 His Asp Ser Glu Leu Met Glu Lys Val Lys Lys Ile Ala Thr Glu Cys
 100 105 110

gac agc gaa gcc aaa gga gaa gac gag tgc gaa att gct gcc aaa gca 384

Asp Ser Glu Ala Lys Gly Glu Asp Glu Cys Glu Ile Ala Ala Lys Ala
 115 120 125

atg gag tgc ggc gtg agg atg gcc aaa gaa cac aac cta atg gac gcg 432
 Met Glu Cys Gly Val Arg Met Ala Lys Glu His Asn Leu Met Asp Ala
 130 135 140

ata cca ata 441
 Ile Pro Ile
 145

<210> 157

<211> 147

<212> PRT

<213> Ctenocephalides felis

<400> 157

Met Lys Ile Phe Leu Val Ile Gly Thr Leu Val Ala Leu Tyr Ser Ala
 1 5 10 15

Ala Glu Ala Ala Lys Tyr Thr Lys Glu Glu Ala Lys Glu Lys Leu Leu
 20 25 30

Gln Ile Gly Lys Asp Cys Ala Val Glu Thr Gly Ala Ser Ser Asp Asp
 35 40 45

Ile Glu Lys Leu Leu Gln Lys Asn Ile Pro Asp Ser Lys Pro Gly Lys
 50 55 60

Cys Met Ile Asn Cys Val Tyr Lys Lys Leu Gly Val Met Lys Asp Gly
 65 70 75 80

Lys Tyr His Pro Asp Ala Gly Ile Glu Val Ser Ala Met Val His Glu
 85 90 95

His Asp Ser Glu Leu Met Glu Lys Val Lys Lys Ile Ala Thr Glu Cys
 100 105 110

Asp Ser Glu Ala Lys Gly Glu Asp Glu Cys Glu Ile Ala Ala Lys Ala
 115 120 125

Met Glu Cys Gly Val Arg Met Ala Lys Glu His Asn Leu Met Asp Ala
 130 135 140

Ile Pro Ile
 145

<210> 158
 <211> 441
 <212> DNA
 <213> Ctenocephalides felis

<400> 158
 tattggtatc gcgccatta ggttggttc tttggccatc ctcacgccgc actccattgc 60
 tttggcagca atttcgcact cgtcttctcc tttggcttcg ctgtcacatt cggttgcgat 120
 tttcttaact ttttcatta attctgaatc gtgttcgtgt accatggctg atacttcaat 180
 tccggcatca ggatggtatt ttccatcttt catcactcca agtttcttgt aaacgcaatt 240
 aatcatgcat tttccaggct ttgaatctgg tatgttcttt tgcagtaatt tttcaatata 300
 atctgaagaa gctcctgttt ctacagcaca atccttacca atctgcaaaa gtttttcttt 360
 tgcttcttct ttagtatatt tagcagctc tgccgcagaa tataaagcga ccagtgttcc 420
 aatcaccaag aatatcttca t 441

<210> 159
 <211> 384
 <212> DNA
 <213> Ctenocephalides felis

<220>
 <221> CDS
 <222> (1)..(384)

<400> 159
 gct aaa tat act aaa gaa gaa gca aaa gaa aaa ctt ttg cag att ggt 48
 Ala Lys Tyr Thr Lys Glu Glu Ala Lys Glu Lys Leu Leu Gln Ile Gly
 1 5 10 15
 aag gat tgt gct gta gaa aca gga gct tct tca gat gat att gaa aaa 96
 Lys Asp Cys Ala Val Glu Thr Gly Ala Ser Ser Asp Asp Ile Glu Lys
 20 25 30
 tta ctg caa aag aac ata cca gat tca aag cct gga aaa tgc atg att 144
 Leu Leu Gln Lys Asn Ile Pro Asp Ser Lys Pro Gly Lys Cys Met Ile
 35 40 45
 aat tgc gtt tac aag aaa ctt gga gtg atg aaa gat gga aaa tac cat 192
 Asn Cys Val Tyr Lys Lys Leu Gly Val Met Lys Asp Gly Lys Tyr His
 50 55 60
 cct gat gcc gga att gaa gta tca gcc atg gta cac gaa cac gat tca 240
 Pro Asp Ala Gly Ile Glu Val Ser Ala Met Val His Glu His Asp Ser
 65 70 75 80

gaa tta atg gaa aaa gtt aag aaa atc gca acc gaa tgt gac agc gaa 288
 Glu Leu Met Glu Lys Val Lys Lys Ile Ala Thr Glu Cys Asp Ser Glu
 85 90 95

gcc aaa gga gaa gac gag tgc gaa att gct gcc aaa gca atg gag tgc 336
 Ala Lys Gly Glu Asp Glu Cys Glu Ile Ala Ala Lys Ala Met Glu Cys
 100 105 110

ggc gtg agg atg gcc aaa gaa cac aac cta atg gac gcg ata cca ata 384
 Gly Val Arg Met Ala Lys Glu His Asn Leu Met Asp Ala Ile Pro Ile
 115 120 125

<210> 160

<211> 128

<212> PRT

<213> Ctenocephalides felis

<400> 160

Ala Lys Tyr Thr Lys Glu Glu Ala Lys Glu Lys Leu Leu Gln Ile Gly
 1 5 10 15

Lys Asp Cys Ala Val Glu Thr Gly Ala Ser Ser Asp Asp Ile Glu Lys
 20 25 30

Leu Leu Gln Lys Asn Ile Pro Asp Ser Lys Pro Gly Lys Cys Met Ile
 35 40 45

Asn Cys Val Tyr Lys Lys Leu Gly Val Met Lys Asp Gly Lys Tyr His
 50 55 60

Pro Asp Ala Gly Ile Glu Val Ser Ala Met Val His Glu His Asp Ser
 65 70 75 80

Glu Leu Met Glu Lys Val Lys Lys Ile Ala Thr Glu Cys Asp Ser Glu
 85 90 95

Ala Lys Gly Glu Asp Glu Cys Glu Ile Ala Ala Lys Ala Met Glu Cys
 100 105 110

Gly Val Arg Met Ala Lys Glu His Asn Leu Met Asp Ala Ile Pro Ile
 115 120 125

<210> 161

<211> 384

<212> DNA

<213> Ctenocephalides felis

<400> 161

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tattggtatc ggcgtccatta ggttgtgttc tttggccatc ctcacgccgc actccattgc 60
tttggcagca atttcgcaact cgtcttctcc tttggcttcg ctgtcacatt cggttgcgat 120
tttcttaact ttttccatta attctgaatc gtgttcgtgt accatggctg atacttcaat 180
tccggcatca ggatgggtatt ttccatcttt catcaactcca agtttcttgt aaacgcaatt 240
aatcatgcat tttccaggct ttgaatctgg tatgttcttt tgcagtaatt tttcaatata 300
atctgaagaa gctcctgttt ctacagcaca atccttacca atctgcaaaa gtttttcttt 360
tgcttcttct ttagtatatt tagc 384

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<210> 162

<211> 631

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (65)..(505)

<400> 162

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gtaaatacta tattggaaaa ttataaaaaa gtttatttat aaatttaaag tagaagaaat 60

caaa atg aag ata ttc ttg gtg att gga gca ctg gtt gct tta tat tct 109
Met Lys Ile Phe Leu Val Ile Gly Ala Leu Val Ala Leu Tyr Ser
1 5 10 15

gtg gca gag gct gca aaa tat acc aaa gaa gaa gca aag gaa aaa ctt 157
Val Ala Glu Ala Ala Lys Tyr Thr Lys Glu Glu Ala Lys Glu Lys Leu
20 25 30

ttg cag ata ggc aaa gat tgt gct gta gaa aca gga gca tct tca gat 205
Leu Gln Ile Gly Lys Asp Cys Ala Val Glu Thr Gly Ala Ser Ser Asp
35 40 45

gat atc gaa aaa tta ttg cag aag aac ata cca gat tca aaa gca gga 253
Asp Ile Glu Lys Leu Leu Gln Lys Asn Ile Pro Asp Ser Lys Ala Gly
50 55 60

aaa tgc atg atc aat tgc gtt tac aag aaa ctt gga gtg atg aaa gat 301
Lys Cys Met Ile Asn Cys Val Tyr Lys Lys Leu Gly Val Met Lys Asp
65 70 75

gga aaa tac cat cct gat gcc gga att gaa gta tca gcc atg gta cac 349
Gly Lys Tyr His Pro Asp Ala Gly Ile Glu Val Ser Ala Met Val His
80 85 90 95

```

gaa cac gat tca gaa tta atg gaa aaa gtt aag aaa atc gca acc gaa 397
 Glu His Asp Ser Glu Leu Met Glu Lys Val Lys Lys Ile Ala Thr Glu
 100 105 110

tgt gac agc gag gcc aaa gga gaa gac gag tgc gaa att gct gcc aaa 445
 Cys Asp Ser Glu Ala Lys Gly Glu Asp Glu Cys Glu Ile Ala Ala Lys
 115 120 125

gca atg gcg tgc ggc gtg agg atg gcc aaa gaa cac aac tta atg gac 493
 Ala Met Ala Cys Gly Val Arg Met Ala Lys Glu His Asn Leu Met Asp
 130 135 140

gcg ata cca ata taatagtaaa aaaatctttg ttaggtcggg tgaagacctg 545
 Ala Ile Pro Ile
 145

tcaaaatgta gtcgttaaata ttagtgtgta agttgtcacg atgtgggcgt aggaataaaa 605
 tggtatttaa aaaaaaaaaa aaaaaa 631

<210> 163

<211> 147

<212> PRT

<213> Ctenocephalides felis

<400> 163

Met Lys Ile Phe Leu Val Ile Gly Ala Leu Val Ala Leu Tyr Ser Val
 1 5 10 15

Ala Glu Ala Ala Lys Tyr Thr Lys Glu Glu Ala Lys Glu Lys Leu Leu
 20 25 30

Gln Ile Gly Lys Asp Cys Ala Val Glu Thr Gly Ala Ser Ser Asp Asp
 35 40 45

Ile Glu Lys Leu Leu Gln Lys Asn Ile Pro Asp Ser Lys Ala Gly Lys
 50 55 60

Cys Met Ile Asn Cys Val Tyr Lys Lys Leu Gly Val Met Lys Asp Gly
 65 70 75 80

Lys Tyr His Pro Asp Ala Gly Ile Glu Val Ser Ala Met Val His Glu
 85 90 95

His Asp Ser Glu Leu Met Glu Lys Val Lys Lys Ile Ala Thr Glu Cys
 100 105 110

Asp Ser Glu Ala Lys Gly Glu Asp Glu Cys Glu Ile Ala Ala Lys Ala
 115 120 125

Met Ala Cys Gly Val Arg Met Ala Lys Glu His Asn Leu Met Asp Ala
 130 135 140

Ile Pro Ile
 145

<210> 164
 <211> 631
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 164
 tttttttttt ttttttttaa ataacatttt attcctacgc ccacatcgtg acaacttcac 60
 actacaattt aacgactaca ttttgacagg tcttcaaccg acctaacaaa gattttttta 120
 ctattatatt ggtatcgcgt ccattaagtt gtgttctttg gccatcctca cgccgcacgc 180
 cattgctttg gcagcaattt cgcactcgtc ttctcctttg gcctcgtgt cacattcggg 240
 tgcgattttc ttaacttttt ccattaattc tgaatcgtgt tcgtgtacca tggctgatac 300
 ttcaattccg gcatcaggat ggtattttcc atctttcatc actccaagtt tcttgtaaac 360
 gcaattgatc atgcattttc ctgcttttga atctggtatg ttcttctgca ataatttttc 420
 gatatcatct gaagatgctc ctgtttctac agcacaatct ttgcctatct gcaaaaagttt 480
 ttcttttgct tcttctttgg tatattttgc agcctctgcc acagaatata aagcaaccag 540
 tgctccaatc accaagaata tcttcatttt gatttcttct actttaaatt tataaataaa 600
 cttttttata atttccaat atagtattta c 631

<210> 165
 <211> 441
 <212> DNA
 <213> *Ctenocephalides felis*

<220>
 <221> CDS
 <222> (1)..(441)

<400> 165
 atg aag ata ttc ttg gtg att gga gca ctg gtt gct tta tat tct gtg 48
 Met Lys Ile Phe Leu Val Ile Gly Ala Leu Val Ala Leu Tyr Ser Val
 1 5 10 15
 gca gag gct gca aaa tat acc aaa gaa gaa gca aag gaa aaa ctt ttg 96
 Ala Glu Ala Ala Lys Tyr Thr Lys Glu Glu Ala Lys Glu Lys Leu Leu
 20 25 30

cag ata ggc aaa gat tgt gct gta gaa aca gga gca tct tca gat gat 144
 Gln Ile Gly Lys Asp Cys Ala Val Glu Thr Gly Ala Ser Ser Asp Asp
 35 40 45

atc gaa aaa tta ttg cag aag aac ata cca gat tca aaa gca gga aaa 192
 Ile Glu Lys Leu Leu Gln Lys Asn Ile Pro Asp Ser Lys Ala Gly Lys
 50 55 60

tgc atg atc aat tgc gtt tac aag aaa ctt gga gtg atg aaa gat gga 240
 Cys Met Ile Asn Cys Val Tyr Lys Lys Leu Gly Val Met Lys Asp Gly
 65 70 75 80

aaa tac cat cct gat gcc gga att gaa gta tca gcc atg gta cac gaa 288
 Lys Tyr His Pro Asp Ala Gly Ile Glu Val Ser Ala Met Val His Glu
 85 90 95

cac gat tca gaa tta atg gaa aaa gtt aag aaa atc gca acc gaa tgt 336
 His Asp Ser Glu Leu Met Glu Lys Val Lys Lys Ile Ala Thr Glu Cys
 100 105 110

gac agc gag gcc aaa gga gaa gac gag tgc gaa att gct gcc aaa gca 384
 Asp Ser Glu Ala Lys Gly Glu Asp Glu Cys Glu Ile Ala Ala Lys Ala
 115 120 125

atg gcg tgc ggc gtg agg atg gcc aaa gaa cac aac tta atg gac gcg 432
 Met Ala Cys Gly Val Arg Met Ala Lys Glu His Asn Leu Met Asp Ala
 130 135 140

ata cca ata 441
 Ile Pro Ile
 145

<210> 166

<211> 147

<212> PRT

<213> Ctenocephalides felis

<400> 166

Met Lys Ile Phe Leu Val Ile Gly Ala Leu Val Ala Leu Tyr Ser Val
 1 5 10 15

Ala Glu Ala Ala Lys Tyr Thr Lys Glu Glu Ala Lys Glu Lys Leu Leu
 20 25 30

Gln Ile Gly Lys Asp Cys Ala Val Glu Thr Gly Ala Ser Ser Asp Asp
 35 40 45

Ile Glu Lys Leu Leu Gln Lys Asn Ile Pro Asp Ser Lys Ala Gly Lys
 50 55 60

Cys Met Ile Asn Cys Val Tyr Lys Lys Leu Gly Val Met Lys Asp Gly
 65 70 75 80

Lys Tyr His Pro Asp Ala Gly Ile Glu Val Ser Ala Met Val His Glu
 85 90 95

His Asp Ser Glu Leu Met Glu Lys Val Lys Lys Ile Ala Thr Glu Cys
 100 105 110

Asp Ser Glu Ala Lys Gly Glu Asp Glu Cys Glu Ile Ala Ala Lys Ala
 115 120 125

Met Ala Cys Gly Val Arg Met Ala Lys Glu His Asn Leu Met Asp Ala
 130 135 140

Ile Pro Ile
 145

<210> 167

<211> 441

<212> DNA

<213> Ctenocephalides felis

<400> 167

tattgggtatc gcgtccatta agttgtgttc tttggccatc ctcacgccgc acgccattgc 60
 tttggcagca atttcgcact cgtcttctcc tttggcctcg ctgtcacatt cggttgcgat 120
 tttcttaact ttttccatta attctgaatc gtgttcgtgt accatggctg atacttcaat 180
 tccggcatca g gatgggtatt ttccatcttt catcactcca agtttcttgt aaacgcaatt 240
 gatcatgcat tttcctgctt ttgaatctgg tatgttcttc tgcaataatt tttcgatata 300
 atctgaagat gtcctgttt ctacagcaca atctttgcct atctgcaaaa gtttttcctt 360
 tgcttcttct ttggtatatt ttgcagcctc tgccacagaa tataaagcaa ccagtgtctc 420
 aatcaccaag aatatcttca t 441

<210> 168

<211> 384

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (1)..(384)

<400> 168

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gca aaa tat acc aaa gaa gaa gca aag gaa aaa ctt ttg cag ata ggc 48
Ala Lys Tyr Thr Lys Glu Glu Ala Lys Glu Lys Leu Leu Gln Ile Gly
  1             5             10             15

aaa gat tgt gct gta gaa aca gga gca tct tca gat gat atc gaa aaa 96
Lys Asp Cys Ala Val Glu Thr Gly Ala Ser Ser Asp Asp Ile Glu Lys
      20             25             30

tta ttg cag aag aac ata cca gat tca aaa gca gga aaa tgc atg atc 144
Leu Leu Gln Lys Asn Ile Pro Asp Ser Lys Ala Gly Lys Cys Met Ile
      35             40             45

aat tgc gtt tac aag aaa ctt gga gtg atg aaa gat gga aaa tac cat 192
Asn Cys Val Tyr Lys Lys Leu Gly Val Met Lys Asp Gly Lys Tyr His
      50             55             60

cct gat gcc gga att gaa gta tca gcc atg gta cac gaa cac gat tca 240
Pro Asp Ala Gly Ile Glu Val Ser Ala Met Val His Glu His Asp Ser
      65             70             75             80

gaa tta atg gaa aaa gtt aag aaa atc gca acc gaa tgt gac agc gag 288
Glu Leu Met Glu Lys Val Lys Lys Ile Ala Thr Glu Cys Asp Ser Glu
      85             90             95

gcc aaa gga gaa gac gag tgc gaa att gct gcc aaa gca atg gcg tgc 336
Ala Lys Gly Glu Asp Glu Cys Glu Ile Ala Ala Lys Ala Met Ala Cys
      100             105             110

ggc gtg agg atg gcc aaa gaa cac aac tta atg gac gcg ata cca ata 384
Gly Val Arg Met Ala Lys Glu His Asn Leu Met Asp Ala Ile Pro Ile
      115             120             125

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<210> 169

<211> 128

<212> PRT

<213> Ctenocephalides felis

<400> 169

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Ala Lys Tyr Thr Lys Glu Glu Ala Lys Glu Lys Leu Leu Gln Ile Gly
  1             5             10             15

Lys Asp Cys Ala Val Glu Thr Gly Ala Ser Ser Asp Asp Ile Glu Lys
      20             25             30

Leu Leu Gln Lys Asn Ile Pro Asp Ser Lys Ala Gly Lys Cys Met Ile
      35             40             45

```

Asn Cys Val Tyr Lys Lys Leu Gly Val Met Lys Asp Gly Lys Tyr His
 50 55 60

Pro Asp Ala Gly Ile Glu Val Ser Ala Met Val His Glu His Asp Ser
 65 70 75 80

Glu Leu Met Glu Lys Val Lys Lys Ile Ala Thr Glu Cys Asp Ser Glu
 85 90 95

Ala Lys Gly Glu Asp Glu Cys Glu Ile Ala Ala Lys Ala Met Ala Cys
 100 105 110

Gly Val Arg Met Ala Lys Glu His Asn Leu Met Asp Ala Ile Pro Ile
 115 120 125

<210> 170

<211> 384

<212> DNA

<213> Ctenocephalides felis

<400> 170

tattggtatc gcgtccatta agttgtgttc tttggccatc ctcacgccgc acgccattgc 60
 tttggcagca atttcgcact cgtcttctcc tttggcctcg ctgtcacatt cggttgcgat 120
 tttcttaact ttttccatta attctgaatc gtgttcgtgt accatggctg atacttcaat 180
 tccggcatca ggatgggtatt ttccatcttt catcactcca agtttcttgt aaacgcaatt 240
 gatcatgcat tttcctgctt ttgaatctgg tatgttcttc tgcaataatt tttcgataac 300
 atctgaagat gctcctgttt ctacagcaca atctttgcct atctgcaaaa gtttttcctt 360
 tgcttcttct ttggtatatt ttgc 384

<210> 171

<211> 133

<212> DNA

<213> Ctenocephalides felis

<400> 171

ctgtangtga agaattatta ggcagagtag ttgatgcttt aggaaatgcc attgatggca 60
 aaggtgcttt acaaagcaaa accagattcc gtgtaggaac taaagctccc ggtatcattc 120
 cacgtgtctc tgt 133

<210> 172

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 172

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gctgtaaatt gggcggctct tgccgagcgt gttccacctg cccaaaaacc caatttaattg 60
gccttcaaag taaaaagtga cggatatatg aggagggttg cggcgaatcc ggaaaatcca 120
ccagcttttag attggaactt ttataagaag tttgtgagtg tgcctggaat ggtagccgaa 180
tttcaaaaac aatgcgagtc tctgaaagtc ccatatccag ccgataatta cacttctaaa 240
gtcgtatgaac aagaacggca agtcaaggct gaaatagaaa ccttcaaaaa ggagtctaata 300
gatcgtatta caaaatatca agctgatatg gaaaggctta aggctttgtt gccatatgaa 360
agcatgacgt tggaagactt ccatgatgca catcctgact tggctttgga tgctgttaac 420
aaaccaacgt tctggcctna cacttcagag gaacaattgg gataccaatc caaagatcca 480
gtagaagctc cttctcat
498

```

<210> 173

<211> 557

<212> DNA

<213> *Ctenocephalides felis*

<400> 173

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tccaaaaata ttcttatggt agccaatgag gttggacgta aaccaccaac tttccaagat 60
gcagctaaat taacaaatgc tgtattgaat tcaggttatg atttcgcac cggaaaaata 120
atttacaata aattttaaact tgttgtctcc tacagttctg ctgaattacc attgttttagc 180
ctgggagctg ttgagtctgc cccaaaattg ggtgtatagc attccttaga tgctgatgct 240
atccaaagct acttgggaatt ttcaatggct tcattattat tctacacaat gaagggaagga 300
gcttgctcgg agcagtcac ccatgatgact gctatggaca atgctagcaa gaatgcagga 360
gaaatgattg acaaattgac attaacattc aacagaacta gacaggctgt catcaccaga 420
gaacttattg aaattatttc tggagctgct tctttggatt aaatttcata cnaatatttt 480
aatatgtggc ttcatctaag tagctcaatt tattacaata tctttaatac tttggttatt 540
tttaatttga atcttgg
557

```

<210> 174

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 174

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aatcaattat ttattgacta tataaataat atacagatgt tagttaaaat tgcatacaac 60
atgaacattt cattttcttc tatttttgac aaagtttatt ttaaacaggt gttgaaataa 120
tttcagtgtg cagctttact ttactggcaa cactcatatc aacataacga tctccaattg 180
atacgaccat tccacccaag attgagggat taactttaag ggtagtaat aagttttctt 240
tgggttttaa gaactctctt aaagtgtctt caagttgttt ttgttgattc tcatctaaag 300
gttttagctgt tgtaacttca catggaacct ctccacgatg agcagacatc ataactttat 360
aagcgttgat aacaccttcc agtttattta aacgtccatt ctcagcaagt aactccagca 420
agttggatgt agctggagcc atttcagct tgctgctggc ttccttcaat gcatttgatt 480
taatggagcg cttgaaag
498

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<210> 175
 <211> 236
 <212> DNA
 <213> Ctenocephalides felis

<400> 175
 tttttttttt tttttttttt ttttttttgg naaatttctc tagangaaaag aggnnttaaa 60
 acagcaaata cataagattg aataatagat acagcanttt ntaaaattaa taaaattaat 120
 tgagagaaaa ttaaaattca aattaatcat atagataggg agtttcctgt attgccaagt 180
 aaagttagaa ttaaattgtcc agcaattatn ttgtctgaga gtcggatggc taaagt 236

<210> 176
 <211> 161
 <212> DNA
 <213> Ctenocephalides felis

<400> 176
 atcttgtcct tcctgggtcac ggaagtattc agntacagtt aatccagtca aagcgacacg 60
 ggcacgggcg cctgggggtt cgttcatctg tccgtagaca agagctacct tggaggtcct 120
 gtctttcaag gaaatgacac caccttcaat catttcattg t 161

<210> 177
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 177
 gacangttat gttattttatt tcatctgatt ttatcacata aaaacaaaaa taagtagcat 60
 ggatttcata cttttaatta taaaatgcag tacagtttaa aatttgtcaa aaagacagtg 120
 ttacttattt aataatacat gaaattatgc aacttacatt ttcatttttg ataacgtatt 180
 tctaatacaa tactactta ttttattaaa ttatgcatta aaagtagcta aaaagtcagc 240
 tacaattttc ttttaattggg catcagatgc ttactaate gttccttcct tggcaatgg 300
 ttgcaaaagg gatgaatggg tggctttgat gtgagcgta aattcctttt caaatgctgt 360
 gatcttggtt gggccattt tgtccaagtg tcctcggaca ccacagtaga taattgcaac 420
 ttgttcttca atagccattg ggacatattg ccttgcttca ataattcagt caaacgaaca 480
 cctctgttaa caattgtgtg tggatgacaa gactgaccga attggcaaaa gcagcaccta 540
 cgatttgac 549

<210> 178
 <211> 400
 <212> DNA
 <213> Ctenocephalides felis

<400> 178
 gatncttgaa agtccgaaaa ttattaatat cattaattaa aatggaccag ggaaaagcac 60

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cagttcgcgt ttcacctctg atcaaattcg gaagggtggag ttttctcgtt gtcggaatat 120
tatatggagc agctcaccaa agcaggctgg caaaacgcga agtaggaatt agagaagtcg 180
aagctaaaca taaagcaatt cgggatgcaa aattagctga ggaaaagaaa cgagctcaag 240
aagaggaaaa caaatacttc gcttcacttt aaacagatta gcattattaa ataggaaatg 300
cagtaacatt caccataagg cattagatgt gctctgtaaa ttattcggat tttatgtgaa 360
ataaaaagtt attatacata caaaaaaaaa aaaaaaaaaa 400

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<210> 179

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 179

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atcagccact gcttctgatg ctgcccctct tcaatatctt gctccatact ctggatgtgc 60
tatgggtgaa ttcttccgtg acaatggaaa acatgctttg atcatctatg atgatttata 120
caaacaagct gttgcttata gtcaaatgtc tctattgtta cgtcgtccac caggctcgtga 180
ggcttatcca ggtgatgtct tctaccttca ctacagctta cttgaacgtg ccgctaaaat 240
gtctgaagct catggagggt gctctttgac tgctttgcca gttattgaaa cacaagctgg 300
tgacgtatca gcttatattc caactaatgt catttccatt actgatggtc aaatcttctt 360
ggaaaactgaa ttgttctaca aggggtattcg accagccatc aatgtagggt tatctgtatc 420
tcgtgtaggt tctgctgcac aaaccaaagc catgaaacag gttgccggtc catgaaactg 480
gaatagctca tatcgtgagg tggctgtttt gccaatcgg ctagatcttg atgcancacc 540
aacaatggt 549

```

<210> 180

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 180

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gttaatatag gattcgttgt ttctagaacc acaacaaatt aaaacacacc aagatgttct 60
cagcagcaaa attcatcgcc ccagtcgcca aatccgcatt tgtcaatgga tcaaaggcat 120
atctgcgacc aatctcaagt gcagtattga ctcaaagctc tactatcaat gtattacctg 180
cagccgctca atctagcatt ttaccacaag ttcgttgtct gcaaactaca gcagtaacga 240
aagacattga ttcagcagct aaatttattg gtgctggagc agccaccgta ggagtagcag 300
gatcaggagc tggatttggt tcagtctttg gatcattaat cattgggtat gcacgtaatc 360
catcccttaa acaacaacta ttctcatatg ccattcttgg atttgattg tcagaagcta 420
tgggactttt ctgcttatga tggctttctt actgtattcg cattctaatt tggttttcat 480
ttgcccgaa aggggtctaga agagtgtcna cgtatcacca ggactgtatt aatcattcaa 540
atccattant 550

```

<210> 181

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 181

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caagttatct ctgaattcct tcacggctcc tcttgcgcat ttgccgactt cacgaaccaa 60
gttgcccaat tgggaccagg tttctttgaa agccttggcc aagtccttgg ctccttcacg 120
ggcagcttga aggacatctt tcaagcaagc tctggcttca tcgacatcgg ctgcggtaac 180
aacgcactcc ttggcttgtg ctctgagggc ttcggcggtc tccctggctt ctctccaggc 240
ggccaagcca ttttggcgaa cttggttgaa ttcttcacgt ttatcatccc tgcaagcctt 300
gaccttagca cgagcttctt gtgcaaaacc tagagctttt tgggtgttggc ctttaaggca 360
ttcctttgcg gcttcactca cttttttgct aagtttcctt tcaacttctt tgttgaacct 420
ttccaaatct ctatcgactt cangggcaaa tccttgtttt tcgaattcag cagcaatcat 480
ttaattttgc tatcntgg

```

<210> 182

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 182

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ggtccgcaat tatgacgtaa cggatcatat gcaaaatttg cggggcaata atattgggtt 120
cctatactat tttcgtcaca ataataatag ctttgacaat catttatatt tggataaaat 180
ctcgatggtg acggacattt gaaaccttgt actttgcana ctgtactttc tttagtgttg 240
cactgtagat atccactttg atcagcgcac acttgatctg ggctacagga ttccttaacc 300
ggatctgctc ctatttccgg acaatactgc atttcgggtg aactgcacga attcacgcaa 360
ctaaatttta cttttttaca tttttgctcg ggtttcggta cangtgtacg ttcangagta 420
gtactactcc tgggtcgggc tcatccaatg atgcaaatac ttctttattt actgttaaan 480
gcgttccgtc gacattaa

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<210> 183

<211> 424

<212> DNA

<213> *Ctenocephalides felis*

<400> 183

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ccagcatttg atggagtaaa gaatgtatat gcttcttcac cccttcctaa agtgggtggt 60
aatgtccttc aaggagaggt ttctattata aaccctgata atgaactgga aaaaaaatat 120
aaagtaacta ttaaatttgc ttcttatgtt gacatgactt ccctttcaaa atatatggaa 180
aatggatcat ctattgagac accgcaggaa gccctgcaat gtattgacat catatttagg 240
catgcactct ccaaacaatt tgttcagggt ggaaagtcct tctttacacc acccagtgggt 300
cgaattgttt ctcttgggtg tggaatggat ctatgggatg ggttattttc tagttgtgtt 360
ttangatgga aaaatgtaga tgttgacat aaaaggattt caactaaaca actantncag 420
aant

```

<210> 184

<211> 313

<212> DNA

<213> Ctenocephalides felis

<400> 184

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aattcttggc tataagttcg ttgcatgttt tgcaagtgat ttgtttattg cattttattcc 60
cgtggcatat ttacatgaa tcagagtttg cattacaatc gttaccctga tctgatttgc 120
atcctcgagt aatgacacct ttttcaattt ttgaatagca gtcgtccttt ggattcatac 180
aaactttggc ctctgtcttt cctgcatctt tgaacattc gtttcttagt tctggaagtt 240
tttgaacggt acaacccgat ttctcgcaac acattttttc tcggttagtc gagtcacaac 300
tttctttaac cgt 313
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<210> 185

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 185

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tatttgatct aaaagcagat aaacactttc tctgtttttg actgcttctt tatcggcctc 60
ttgtcctaatt cttagtaaac ttgatgatgt tagtgctaaa aattccttca tcctatcttc 120
aatatcaccc tgtccacaag tagtaaacaa agcaccaaaa atattattaa tggctaaagc 180
catacaatgc atattgttag tatggccttc caaacttgct cgggtanaag attgatcgct 240
tcttgctaatt tttggaatag aaacagctac aaaaaccatc aataagcata ctaacaaatg 300
ttcatcctcc tcgtgttctg acttctgctg cctcaaagca tttgctanag ttggatctac 360
tttacaagtc aaacctgctg ccgatgacat ctcaagaaac aattttcatt gggctctccac 420
ttggcaatga tgtttaatgt ccttggtan aacttataaa aatggtatac gctgttctaa 480
cacgtctact anagatct 498
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<210> 186

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 186

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aaaacttcaa agaacattcc atccaatgga ttttcaaaca ttctcatcat acggtagttt 60
gatataggaa aattaacaaa tacaataaca atatattaaa ctattcatat tagttatact 120
atttatttct taatccacaa gttcagagac ttcagtaatt gtagcatctg ctaacatgcc 180
ttttttgtca ccagttatta catgaccaac aataaaagct ttttgctttt caagctcata 240
aatctcttta atatatcctt ctgcatctgc ttttggtaaa gctattaata ggcctcctga 300
agtttctggc aaatatcctt ctgctagctt aaacattttg ctgaagattt tggcaacttc 360
ggaacatttg taaaaaactg gtagtttatt caatacaaat gaaacattat ttttctgatt 420
ctgggccaaa ttatcagcat gaccgagaat tccaaagcct gtgacatcag tagcatcatg 480
agcattatat ttatgcaa 498
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<210> 187

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 187

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cattcagcaa aggaccggtg cttcttgga gtggtattga tccacgagca atagttctaa 60
cattttctgc agaacagcaa ctaccagaac cgctacctcc attggaacca cgaggagcta 120
atatgtattc tacttcttga cctaaatcta ggtttgatgt gtcgccttca aaattgctga 180
aatggaaaaa cacttcttta tcatgcgaaa tggctcgcgt aaaaccgaaa ccatccttca 240
aggctgctac aaatccttgg cacaactggc cgttgctcaa agactgacgt ccatttttgg 300
agacaccatt gcgcaatgag gtgcttgatt gtgaagtga actactgctg cttgacgaga 360
cagttgaacc gttaaagctg tggtttgatg actggttact aatggcagtt actacaacat 420
ctgntgctat cagttcttta ttacgcttac ctgactaatg ttgaaatcaa ctttatcacc 480
cattctaggt tgccgatc                                     498

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<210> 188

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 188

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gcacactggg gctgttgtaa cattggaagt tgcaaaacag ggagctatct atcatgggtct 60
ggctacatta cttcaacaac cgagtccact tttgaatcaa ggccaagaa gaatgtcgga 120
acgcgatttg ccgtcacgtg ttagtgaga gggtcgggt aaatctattc tgccatctag 180
taaatcagta ccagcactgc accatgggtg ttcttcgatg caggaaatgt cagtgaatc 240
agctaattta aaatctcata gcaccataa cttaacacaa aatacaaac cacagcaaga 300
tcaaggtttt tatcaaaacc taagtgtata tagaggaaat tcatcacagc caaatctaga 360
tcgtggatca ggtttaaggt cccacagaa tatggttcaa caaatgtgc atcagagttc 420
taggccagct tcagcatact ttctaacca atctagggtc caatcaaact tcaaccaacc 480
tgttctaate ttagatctca aagcactaaa gatattgaaa cttttgcgtg aaatcttgn 540
caacagtta                                     549

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<210> 189

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 189

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gacaacccta tcagtccagc gcagagtta tataaatagg gatgaaaata ggcaagttgc 60
ctccgtgatg caccattctg atctgaataa tttgttgaga gttggcagtt tgatattctt 120
aaatgtcggg caattgctgc cgcacagct gcagtcgttc cacacgccga attacatcta 180
tccgattggg tatcagattg tcagatttta ctggctcgat aggaggccga ataaacgggt 240
cagatatatt tgttcaatag ctgatgttgc tggacgtcca gaatttcgag tacgcgttca 300
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aattctggag ccattggccg ctatgagaag ggaattgggc gattcagttc gtctgtttcc 420
caagtacgtc actggtgaag atttgtttgg acttactgag ccagctgttg ttcgagtact 480
cgaagtttac caggaattga gacattaacc gatatcgctt caagtatgga aggaccctt 540

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549

<210> 190

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 190

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tgaacagaac aaccttgact cataacaaaa tggcacatat ttgtctttca attgcagntg 120
gattggttca cttacattca gaaatttttg gaacagaggg cgaaggtaaa ccagctatgg 180
ctcatcgtga tatcaaatac aagaatattc ttgtgagagt aaatggaaca tgtgttatag 240
ctgatttttg tttagcagtt acacatacac aatctacagg agctctagat gttgcatcta 300
atccaagagt tggaactaga cggatatatg ctctgaggt tcttgatgaa agcatcaaca 360
tgcaatgctt cgaagccttc aggcgcgcgcg atatctacgc tctgggtctt gtctatggga 420
ggtcgctaac agaactcttt cgaatggcat tgtgaagaat taggccacct tactacgacg 480
tcgtgccttc tgatccaagc ttgaggatat gcgcaaagtg tctgcgtgcc acacagacca 540
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<210> 191

<211> 492

<212> DNA

<213> Ctenocephalides felis

<400> 191

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ggttaccaag cttggatcat tggaattggt gaaaaaggaa atcgcacagc aagaataatt 180
gacaaacctc gagttattga agttccagca aaagattaga atgataatga tatgattatt 240
taattacaga atgaaataaa ggggtgatgt ctgtgtcaac attatgctag ttaaacaatg 300
gcatctcatt cctgctatct gcaatgcttc aatatttttt tgaaacaaat tgttctatta 360
atgcaaatgt agattttaag aatatatata gataagaatt attgttttaa gagtaatttt 420
gaatcatgaa gaaatttctt gatttttcaa ttcttaataa agtcaaaagt aaaaaaaaaa 480
aaaaaaaaaa aa                                     492

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<210> 192

<211> 479

<212> DNA

<213> Ctenocephalides felis

<400> 192

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tggctcgggt gcttcttgat tactcctaaa accattttgt ctacaagctt ttggtcattc 180
ttcctttgct cagttggttt ataagcctct ttcttggcag caaaaatata accttcctct 240

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ttctttgcac gcttggttctt ttgccttttg aaataatcat cattgatgtg ttctggtaat 300
 ttaactccac taacgtctaa tcgggtagag gtggcaatga catagttttg ggaaatgcga 360
 cgcaatgggc atgcattgat taagaangga cctgtaacaa gtaacaatcc agagtccaac 420
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<210> 193

<211> 528

<212> DNA

<213> *Ctenocephalides felis*

<400> 193

agtttctggt tacattcccc aacgttattc ctccagaaat ggttgcagct ttagagagat 60
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 acatggaccc agaacaagag gcacgaagac gtagtcataa aaatgcatat gatgaagatg 180
 atgagggagg acctggagca aacagagttc aatgtgccac gagttaaatc gtagtaactt 240
 agggcattgt tttaaagtat tgtctaacac tatttatata attttcctac gatgataaca 300
 tgagttttat gtcatctatc atatttatca tattgatact tggttagggt tttacattgc 360
 acaattattt gtgactttgn aattacacac gatnttatgc tccacngtaa cggatgggac 420
 acccaantgg nctaanggta ccattttttc ntttttagat agacaatctt tattttttgt 480
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<210> 194

<211> 370

<212> DNA

<213> *Ctenocephalides felis*

<400> 194

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 atttgacagg ctttgtgccca ggctcacacc tggaacctct gcatttctga caagtatcta 120
 ctatgttgac attaatatct ttattaactc ctctgacgac ttgagagaat gttagtcca 180
 tagatacttc ttttgacca ccaaaccaca aactggattc agcaaagtca tcaaacctc 240
 cagttttaaa tcttgcatca ccaaataatt tgtgaaatag ttcttcaggg tcgattgtcg 300
 attgataact ccaactctgt gagaagcctt gagggcctgc tcccccatg ccgccatct 360
 gttcagaggt 370

<210> 195

<211> 343

<212> DNA

<213> *Ctenocephalides felis*

<400> 195

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 ctgttgaaat ttagctaaac tgaaactagt attagctcca gtttgctcta caggattgcc 120
 ttggggagta ggagtcgctg tcggggctcg tgtctgcggt gcagacggtc ctggtgtatg 180
 tgaatgtgga tgcgtgcctg attgaatata aaaatttgta gcagtggaaa ctgcacatga 240

aggcgatgat ccatgccttt gatgtggact cggcagagga tgctgagctg tgggaatact 300
accttgattt gacatcctat gttgtatcac agaactcatc ggt 343

<210> 196

<211> 749

<212> DNA

<213> *Ctenocephalides felis*

<400> 196

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ggtttaatac gccgatttaa aaacagacat cttatacaaa attaaaatgg ctgctgntaa 180
attatagaat atcttttgat ttaaacaaaa tctaaatagt acataaaact ggacattact 240
tccattatat atatagatat atacatatgt atgttaatgt atatatacat aaatacatat 300
agaatcaaac aatatcacia actgttgatt tgaataagtt gctattcata aaattatgtt 360
ttcgcattha gtacattttt tgtatgtgct taagatgtat ataaacacat atttgntaat 420
tagtaaaaaat taacataagc ttgagacatt attaggtgct actaaaattg ataaatattt 480
acataaatta aaacaatttc aattcttata tgtgtggnag taacttcaaa atctgnggaa 540
atattgggta aattgggtact ggnctgnaaa taatttacta aacagaaatt atattgactc 600
ctatctggca ttggcttctt aaccatttta aatttaattt acttaatctc ttcagaaata 660
gcttaataag gngagacatc ccagganaat tgggtggataa atattggtaa aagctcaaca 720
ggaacattgn gacctgaatg gctggcaaa 749

<210> 197

<211> 210

<212> DNA

<213> *Ctenocephalides felis*

<400> 197

ggaagcacct taggctgtgc aggacatgta actgtatagc attttgtgcc cagagccata 60
ggtccgcaat tatgacgtaa cggatcatat gcaaaatttg cggggcaata atattgggtt 120
cctatactat tttcgtcaca ataataatag ctttgacaat catttatatt tggataaaat 180
ctcgatgggtg acggacattt gaaaccttgt 210

<210> 198

<211> 185

<212> DNA

<213> *Ctenocephalides felis*

<400> 198

accacgaggt gcaggcggaa ttccagttaa atcaaagggt cctaaacgat tggtatcttt 60
ggtcataacc ctttctcctt catagacttg aattgttact gcaggctgat tgtctgcata 120
agtgtgaag gtttgtgttc ttttacctgg aattcttgca ttgcgttcaa taatcttagc 180
cattg 185

<210> 199
 <211> 223
 <212> DNA
 <213> Ctenocephalides felis

<400> 199
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 cccaaaggta ttgttcatca tcattgtgct tagatgtgac cgtgacttta tcagcaacga 120
 gataggccga gtagaaacca acaccaaatt gaccaatcat actaatatcg gctccagctt 180
 gtaaggcttc catgaaggct ttagttccag acttcgcaat tgt 223

<210> 200
 <211> 465
 <212> DNA
 <213> Ctenocephalides felis

<400> 200
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 atgtggatct agatgagttc ctttctgaga atggaatccc tgtggatgga atgggtcaca 180
 gcgggtggatt ggggtccatg agtcacttag gtggcttagg aggatctcat aggtctgagg 240
 ctttaggtca ccctttgagt ggtatgcca cacaatctaac aaagattgaa agatcacctt 300
 caccttccga atgcatgagc ccggatacta tgaatcctgc ttctccagct gattcaacat 360
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 aactaaagcc tcaacctatg atcaagaaaa gtagaaagca gtttg 465

<210> 201
 <211> 312
 <212> DNA
 <213> Ctenocephalides felis

<400> 201
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 tctctgagta atgacacctt tttcaatttt tgaatagcag tcgtcctttg gattcataca 180
 aactttggtc ttogtctttc ctgcatcttt gaaacattcg tttcttagtt ctggaagttt 240
 ttgaacgtta caaccgatt tctcgcaaca cattttttct cggttagtcg agtcacaact 300
 ttctttaacc gt 312

<210> 202
 <211> 209
 <212> DNA
 <213> Ctenocephalides felis

<400> 202

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 gggtgacatg tggtaggtgt gattatgggc tataggatcg taagctgccc taatgctctg 180
 ctgacgagca aagtccattg tgcaggagt 209

<210> 203

<211> 293

<212> DNA

<213> *Ctenocephalides felis*

<400> 203

ccggagnctg ggggtggaagt ggagcttttg aaggatgggt attggtttct gcccaaaatt 60
 acaagagcaa gatttgaaga attatgctct gatttattcc gctctacttt acgcccagtt 120
 gaacaagcgt taagagatgc aaagttagac aaaggagcca tacatgatgt tgtattggtg 180
 ggaggttcca caagaatacc taaaattcga tctctgctac aagaattctt tgcaggaaag 240
 accttaaatt cttccataaa tccagatgaa gctgtggctt atggtgctgc agt 293

<210> 204

<211> 377

<212> DNA

<213> *Ctenocephalides felis*

<400> 204

aaaaaggata taagaaccga tnttaggnnt atgagacgat tacgaactgc tgnagagcgt 60
 gcaaaaagaa ctctaccaac tagtacggaa gcatgtgtgg aagttgaagc tttgaaggat 120
 ggtattgatt tctgcaccaa aattacaaga gcaagatttg aagaattatg ctctgattta 180
 ttccgctcta ctttacgccc agttgaacaa gcgttaagag atgcaaagt agacaaagga 240
 gccatacatg atgttgattt ggtgggaggt tccacaagaa tacctaaaat tcgatctctg 300
 ctacaagaat tctttgcagg aaagacctta aattcttcca taaatccaga tgaagctgtg 360
 gcttatggtg ctgcagt 377

<210> 205

<211> 452

<212> DNA

<213> *Ctenocephalides felis*

<400> 205

tttcttttaa attcgtccat gagatgatct actagacgat tgtcaaaatc ttcaccgcct 60
 agatgagtat caccggcagt tgctctgact tcaaatagag atccttcac aattgttaaa 120
 acagatacat caaatgtgcc tccaccgagg tcaaatatta acacattcct ttctccttgt 180
 aggtgtttat ctaagccata tgccaaagca gcagctgttg gttcgtttat aacccttaaa 240
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 taagcaggaa cagtaataac tgcactcttc actttctctc caagatagtt ttcagctgtt 360
 tctttcatct taactagcac cattgcacta atttctctg gtgaaaagcg tttcagttgg 420

ttcttgtatt caacttcaat tttaggtgtt gt

452

<210> 206

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 206

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 tcctgacgca tcaccagaac ttaacttacg tttttttgta gggtcttcag acccggttagt 120
 agcagattga gaagcctctt gttcatcccc cggttctttc ttaatactgn aatctacgta 180
 tccagtaagc cattcctttg gtgtgttttc atttggtctt ccgtgtttgt ctagtttgcc 240
 tgcggctatc aaagacttct tttgtgatgc cttaggtcct aagccccatt ttctgggata 300
 tgtatntcgc tccattatca cacgttttaa tttagcacag actccatggt cgcattgacat 360
 cattgttgct gnggtcatta gagcgattgc taatgcaata gcttctccct tagtagtaac 420
 aataacaatt tcctgattca tctcgattcc atcttcatac ctcaagacgc cgnaacata 480
 actttngacc gnnacaaaca 500

<210> 207

<211> 264

<212> DNA

<213> *Ctenocephalides felis*

<400> 207

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 gggtacccat tcgtgatcat actggttcag aagataacaa ccgacagtca tgcctcccaa 120
 aaagatcaat ccaatggctc cgatggagaa aaatcttctt ttacatttgc agctgggttc 180
 agtatacaaa tattgacctt ctatatcttc tgattttttt aaaagtgtgtt gttcttggtt 240
 gccttctgat ggtggttggt ttgt 264

<210> 208

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 208

atttccttgt gctaattcaa ttgttcgggg atgaagtgcc agctctggaa ccccttgaac 60
 aacttcagaa accaaatcag caactctagc ctgacttgtc tgtgaaccag nttgtccagg 120
 tgtgttagca gaactttgaa tgataagatt ttgggttgca gcaagactct gtccacacat 180
 atttctccgt ttatgagatg ctaaatcatt actttgggca aaagctctac cacaaacat 240
 acaagcgtag ggcttttcac ctgtatgtgt cctcatatgt atagctaact tatcagatcg 300
 tgcaaactct ctgttacaaa cactgcatac aaatggnttt tctcctgnat gttttctcat 360
 atgcaatgna agatctgtag ttcttgata accttacca cagattttgc aaaaatttgt 420
 catttgacca gtatgtctcc gcatatggac ggntaaatta cttcttgact gnaactttta 480
 ccacaaacac tgnataat 498

<210> 209

<211> 470

<212> DNA

<213> *Ctenocephalides felis*

<400> 209

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cataattaaa taaacttttt gtcaaaaact acagtaaaaa taataaaaaac atttcatata 180
aatgtaaaca aaattgatga tcattgataa ttcttggtta atgtgctttt ttaaagcaaa 240
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tttcttcatt cgctcaagct. cttggcgaag accaatattc tccttctcca agtatcctgc 360
acgtaaggct atttgatttt ctttcatgcg tcgagcatct cgagatcgct tggctgccat 420
gttattcttt ctcctctagc ccaatcttat catccttcaa attatcaggt 470

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<210> 210

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 210

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naattacata atgattacna cttacaact attcttaaatt tctagtcaga tatcagncat 120
ataataaata ctttaagcttt tataagaaaa aatgcatcac tagataattt tttcagccct 180
tattcgatta attttaatgg ctttgtttaa tcaacttctt ctatcgttgg cccttgccct 240
ccaccaaagc ctccggttg ctgccacaa gtttggtgct gtgctccact tgaattggct 300
tgatgtagct tcatcataag cggcgtacaa atctgttga actctttctc ttttggttca 360
tattcatggc attctgcttg gggattctga tctatccaag anaatatatc atcacatgcc 420
ttgcgngctg gttcacaatc ttgctgnnga agcctgcttc cacatcggcc agagcttggt 480
ttacttgnna gcatacctc 500

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<210> 211

<211> 263

<212> DNA

<213> *Ctenocephalides felis*

<400> 211

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ttcatttcag gcataaatc tggtgttttg tgaccattaa taacatcaac ccctggtaac 60
atatgaccag gccagtgta gtgccctggt tcatattcaa atttcacagg tgtgctcaca 120
tgtggagcta aaggaggagc cagagatctg agatgatttc cattagagga tgggtggactg 180
ttttgttctt ggaagtatct tctggcaaac atatggtgtt tcttctgagc aacaggaggc 240
tggcgcgagg atatcgagg ggt 263

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<210> 212
<211> 244
<212> DNA
<213> Ctenocephalides felis

<400> 212
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cctacaatgt gataatgtaa tccgaggaaa ctcatctacc agtcgagagt tttgttctac 180
cttttgtatg aacaaatata aaaaaaagaa tgataagaat ctcataaatt taccCGTTac 240
gagt 244

<210> 213
<211> 418
<212> DNA
<213> Ctenocephalides felis

<400> 213
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atcagcaaaa ccaacaattt aataatcagc tgaatcagca attgaataat caacaaaATc 120
agcaatataa taatcagaat caacaattaa ataatcagca aaaccagcaa ataaatagta 180
atcagataaa tcaacaacaa aataatcagc atgttaacac acaacaacaa aatataTctc 240
aaggaaagtaa gcaagtaggc cagggcaATc aaattccaca ggtgcagcaa cagcaggtgc 300
cgaccatgta gcttctgtga atcttaacaa taatattcca cataaatctg gggaaattca 360
aaacagtgtg tagacagtat acaactcctg agactctcta ttccaagcaa gacccCGT 418

<210> 214
<211> 498
<212> DNA
<213> Ctenocephalides felis

<400> 214
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gaaataaaAT cgtaaaagaa aatccttcaa ttgatttttc atctatatca aaaaaattag 120
gtgaactttg ggcaaATgtg cctaATggag agaagtataa ttggcgTcga agggctaaac 180
gtatggctat gaaagtagcg agagatgaag aaataaaaac atctgataat aaagcacaAT 240
ttataaataa aagcaaATct aataagccct cccaattctc cacttcacca acagtttcta 300
agaaacttga tatagaagat ttagaagTga tgcctaattc ccaacaaaAT tctgataatt 360
taatgttgag ccccaaATca tcagcaATga gcagcggttt atcatctcaa ggcATgtata 420
aggtaacagg aagttcccca attgacatag ctgcttatct aaagttactt ggcgagaggt 480
tgagtattat tggnggac 498

<210> 215
<211> 398
<212> DNA

<213> Ctenocephalides felis

<400> 215

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aaggatccca gcaagtttgc tgctgtact gctgccgctc cagctgctgc tgctgcagca 120
cctgctgaat ccaagaaaga agaaaagaaa gaggaatctg agtctgaaga tgatgacatg 180
ggtttcggtc tctttgatta agaacttggt ccacaatatt aacatttttg gaaatccata 240
tttatatgaa tatttacata ttcaagtctg tttgtgatta ttatctgtaa atacttgtct 300
gaactttgcg cagttctgtg gcaatttaca agattttatt tgtaagcata actttgtata 360
ataaaatatg gatgaggata aaaaaaaaaa aaaaaaaaaa 398
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<210> 216

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 216

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gattaacaga ggaaaaagcta cgtgttttag taaaacaatg taacaaatgc ccgaaatgta 180
atgaaatttg tctagaggat tttcccggtt ttcaatgtag tttgaaccac agactttgca 240
agacgtgctt tttggcttcc ataaatgatc cttgcttcca gtgcactaag ggcagcaaac 300
catccgctaa taaaaaagat cggccaaagc agccaaatgc ccagacaat tctttcccgga 360
aggtaaactg caaatatgcc agtgacggat gcaaaatctc aaaaaagaag gacaaaatta 420
gatttcacga atcggaatgt gtgtttcaac cacaagaatg tctggaaaat tcaactgttta 480
tttaattgta ctggccggta tttcaacgca tgctaccttt gtgagaacat cattaaatgg 540
aacacatga 549
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<210> 217

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 217

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caaacgtaca taagaatggg agcgattatt ttaagttcag attaaattgt atatactttt 60
gattcgatgt acgggcgcaa tcatcacact cggagattgc agagagcttc aactgctgca 120
cttctcgaaa acaccaacga aaggttgccg gtggcgagcg actgcagcac aggccctagc 180
gtgcgttcgt ccagctcgaa cccgttgcaa gccagcgcgga gcaactagtgc tactatgatg 240
gcttcagacc gagtgccagc tccgcctctg caggaggtca acacacccgt agctgagaac 300
tggtgttaca cacaggttaa ggtagttaaa ttcagttata tgtggaccat taataacttt 360
agtttttgcc gggaagaaat gggcgaagtg ttaaagtctt caacattctc agcgggcgcg 420
aacgacaaat taaagtgggt tctacgtgta aatccaaaag ggctagatga agaaagtaaa 480
gactcctcta ctgattacta cttgatctgt acaaatctga agtcggccaa ttaattctcg 540
atttaatgc 549
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<210> 218

<211> 547

<212> DNA

<213> Ctenocephalides felis

<400> 218

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ttaaacgata cacaacatga cactggcaga atcgctactt atgaagaaat agttgatttg 60
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ggaaaaattc cgacggctat aaacattcca ttacgtgaat tggaaaatgc tctcaagaac 180
atgtctcctg aagaattcaa aaccaaatc ggaagagata aaccaacatt cgatactgaa 240
atcattttta gttgccgttc cggaaaacga gcaaaggaag ctatggaaac agcattggga 300
ttgtgttaca agaatcaag atactacgaa ggtagctttt tagaatggag cagcaagcag 360
aagaaacagt gaaattgcag ggtaaatcaa atattttata tgatacacat attattttca 420
gatatgatca aactaagtat tcttgnngng ntatattagc atattgatat tttcttacga 480
aatgttctta agatgattta aaaatattgt gaataaattg ttacttttag attnnctaa 540
taaaata 547

```

<210> 219

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 219

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gtgatgtcat ttgtgcaaaa gaaacaaaact gaatgggaac cggagtgggc tggagatgag 60
agtataatgg cattaatgaa tgggtggagaa ttattttattt atgaaataga taaatgtgag 120
tttgaacat catgggatgg aaagccaacc aaaaaaattg ggggaggtcg aaatggaaga 180
ataagcatat caccatctaa tactacaacc actttagctt tttatgtacc tgggtgcgcaa 240
gtcagccat cgacttgcaa attatttgca taccctaata tcagtcaacc agtagcttca 300
aaaagctttt tccaggctga cagggttgat tttttgtgga ataatcgtgg aacaaatcta 360
cttcttctaa cagcaactga tggtgaccaa actggtgctt catattatgg aaaacaatct 420
ttgcagtata tgagttgcaa ggggtgatact gnttggtcag tgccaaagaa gggctgtcat 480
gcagttgcat ggagtcctaa gattagagtt tgnnggttac ggcattgcct gtaaaactcan 540
tatcaatct 549

```

<210> 220

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 220

```

gctntttaga cggttgaatc taaataatta aataatgata ccgaaaatat tattatttag 60
taactaatct acgaaaaaag tattttttta attaatgaac atgtcagcat cagcaagcag 120
atcggaattt gcaatcacag aatctaacca acaagaagat gaatgtggac cacaattaat 180
ttctaagata gagggtaatg gtattacaag tggggatatt aagaagttac aagaagctgg 240
atactatact gtagaatcaa tagcattcgc accaaaaaag agtcttataa ctataaaaag 300
aatatccgaa gctaaagctg ataaactatt agccgaagct gctaagcttg tgcctatggg 360

```

gtttacaaca gcaacagaat ttcatacaaaa acgatcagaa ataataattgt taacaacagg 420
 ttcaaaggag ctagataaac tattgggagg aggtttgaaa ctggatcaat aacggaagtt 480
 tttggtgaat ttcgtcaggg aaaacacatt atgcctacat tagctgnaat tgcagtacct 540
 atagatcaa 549

<210> 221

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 221

cttgaataga ttatttactt tgtccttaaa tttcaaagaa gtccctacgc gcaccaagat 60
 gggtagggag gacaaagcca cctggaagtc aaactacttt actaagctcg tccaattggt 120
 ggatgaatac ccaaaatggt ttattgtggg agccgacaat gtgggttcca agcaaatgca 180
 acaaattcgt atgtctttgc gtggaagcgc cgttgcctt atgggcaaaa acaccatgat 240
 gcgaaaagct atcaaaggtc atgttgagaa caaccaggct cttgaaaagc ttcttcctca 300
 cattcgcgga aatgtaggat ttgtatttac tcgcggagat cttgttgata ttcgtgataa 360
 attgttgga aacaaagtgc gtgtccagc tcgtgctggt gccattgctc cattgccgtt 420
 attattccag ctcaaaatac tgggtctagga cccgaaaaga catctttctt ccaagctctg 480
 ncatcaaca aaatttcaaa aggactattg aatcatcaat gatgtcatat cttaaaacct 540
 ggggataaa 549

<210> 222

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 222

gcgaggcgga nattgtnagt ncttttaagt attaacaatt taattaagtt tttatttaatt 60
 ttcgttattt ttttttaagt ttttacgtga aagactttga ggagtgattg nttatcagca 120
 accaacanaa aatgggggtcc gagatgaaaa gtacatgcta caaatgcaat cgcgtagac 180
 actttgccag agaatgcacc caaggaggcg gaggtatggg aggtggccgg gaccgcatg 240
 gcggtcacag ggactcgggc cgcgtgctg agaaatgcta caagtgtaat agatttgcc 300
 actttgccag agactgcaag gaggaggctg accgatgcta cagatgcaat ggcactggac 360
 acattgctcg cgcttgctg caaagcccag atgaccatct gttacaactg taacaagcca 420
 ggacacattg cgaggaattg tctgagagcc gtggtntgac tccagntagg tcaaccaacg 480
 tgttcaactg cacaaaactg gtcataattc cgtactgcca gaaatgctag acttgtagc 540
 tgtggaaagc 550

<210> 223

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 223

```

caagttttgt ctgcaatata taaaaattta agatggctaa agcaccagca gttggtatag 60
atttgggtac tacgtactcc tgcgtgggtg ttttccaaca cggaaaagta gaaattattg 120
caaatgacca aggaaacagg actactcctt catatgtcgc gtttaccgat acagagcgtc 180
tcacgagaga cgccgccaag aatcaagtgg ccatgaacct caataacaca atttttgatg 240
ccaaacgtct tattgggcgt aaattcgagg accaaacagt ccaagctgat atgaaacatt 300
ggcccttcga ggttgtcagc gatggaggta aacaaaaaat tagagtatcg taaaaaggag 360
aatccaaaac cttcttcctt gaagaagtca gttccatggt gttgactaaa atgaaggaaa 420
ccgctgaagc ttacttaggc aaaactgtga ccaatgctgt cgtctgacct gctacttcaa 480
tgactcacia cgtaagccc caaggattcg ggactatctc cgtctgatgg tgagatataa 540
cgggccccg 549

```

<210> 224

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 224

```

atacgatagg catttgtgcg agataattga ttattgtgtg aaatttatgt gaataaatct 60
gtgaaccgct ctgtaggtta cgatttgtgt tcaatgttaa aagaaatgtg caaacagtga 120
attcagatct gtacaagtga catttgcatt taacaaatat ggggaagaca tactgtcaat 180
cttgtcgcaa aaaatgttca ggtgaagttt tacgagtctc cgacaaatac tttcatactc 240
aatgcttcca gtgctgagc tgcaataaaa gtctcgccca agggggcttc tttcaciaag 300
acgataaata ttattgtaca ggagactatc aaaaattatt tggtaaaaa tgcgcagtgt 360
gccagcaata tgttgaaggc gaagttgtat cagctctagg aaatacttac catcaaaaaat 420
gtttcacatg tctagtgtc gtcaagctgt gccgccgag aaaaagtaac atacaccgga 480
aaagaagtcc tctgccagaa atggttcaaa tccagcagac aagtcaacag tcacagaaag 540
tccttagtca 550

```

<210> 225

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 225

```

ttttcgtgct tgtgttattt tgctacatgn ngctgtctgt ctggttgac gaccatacct 60
acagtaaggg ctattcggag ttgacaaaaa actcagatgt cgaattcatt gtagaagaac 120
attattcgga atccgattcc gatgcatcgg tgactgcga aagagataat aaaatcggtt 180
cgtcgcaaa acaggaacaa catgtgataa taatccaaaa atctgctgat gacatacacc 240
gatgcgaact gtgcaataag acgtttaaat ttgcaacaaa tcttaaggct catatgggta 300
tgcacagcgg cgaacggccc tatgtctgtg ccatatgcag taaagctttt ccacgaattg 360
ccaccttgaa ccgacacatg caagtgcata ctgaatttaa accatttcag tgtgaatttt 420
gtgagaagag atttcgacaa gatgtnactt tgaagaacca tatcangact cataccgggtg 480
agagattaat tggcatgggt tgaaaatctt ttaccgccta ccaactctgaa cacattacga 540
tcacatgag 549

```

<210> 226

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 226

```

tgaaagagat gcaggcattg tgggtgattc ctccggaaga ataaaaagtg taatttcagg 60
agaagaagtg gaaaggatag ctaacgaaac taaagttgag gtgttggaact acggtcaatt 120
ttcaatatgg ccaggtgtga tagactctca tgtgcacgtc aacgaaccag gaagagaatc 180
ctgggaagga tacaccacag ctactaaagc agcagcttgg ggcggaatta ccacaatagt 240
agacatgcct ttgaattcca tcccacctac aactactgta gagaatttga gaacaaaagt 300
gaattcagcc tgtggtaaaa cgcatgttga tgtcgctttc tggggaggcg tgattcctgg 360
caatgcgcac gaattgttgc cacttatcaa cgccggagta agaggattca aatgttttac 420
aagtgaagt ggtgtcgatg agtttcaca gggtactaaa aatgatctgg aaatggctct 480
aaaagagctc cagaaagc

```

<210> 227

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 227

```

cagccgttat agcggttgaa actgataata tccaaatggt gtccaacttt atcttcatcg 60
actgccctcg acaatgctat tgttactggc cgtgaaacat ctaaaactttt cacgtgatca 120
acgatagccg aaaaataatc atccgatgcc gtaatctgag ttctagggtc atttgcaatg 180
gaccacatta tcaactcctgg gcgattctta tcacggcgaa ttagctcgct taacgacatc 240
ttgtgcttag caagcaattt tgaattgtaa ttctctgtat ctacacttgg acattcattg 300
attatcatga tgccgttttt gtccgccagg tccataactt cttccgaata aggataatgt 360
gatgttctat atgagttggc cccaatccat tttattaagt tgtaatcttt tgcaataata 420
gccaaatcga gaccttttca cgtatgtcag agtcttcatg tctacaaaaa cctcttagat 480
ataatttcct gtgattaa

```

<210> 228

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 228

```

atgtccttga agtcctcgag ccgatgcaag ggtcccatcc agaccgcata ttccctccggc 60
aatctcggaa caaaaagcgt gcttcgacct gttccgacct caacggcccc gaacagatcg 120
ggttccttag cgccaaacat gtattggaag taggattcct gtttaaaaat gtagcccaca 180
tccgtgtcgt tccagctgac ctcttcacct ccttgcagaa ggataatgga tttttttaag 240
gaacaacttt gtgccgataa agcatgcgac accttcttcc tgttctcggc gaataaactc 300
atcggaactt tcagcgtttt tgggtccatg gagaagaccc gctgctgacc cgatccggtg 360
gagcacttgc atgttgattc tgccattatt cttttaaact ataacactaa gcgatttaca 420
caatttaatt aacaataatt actaaaaaaa tttaattaaa cacatataac caaaaatttt 480

```

ctgtcactga acataagt

498

<210> 229

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 229

```

aacagttgca tgaactttgc ccttcaacgt cattcctaag tatggtggtt ctttattctt 60
gtgttggtt atgtcttttag tgaccttaaa ttcttcctcg ggatcccaaa ttactaaatc 120
agcatccaag ccttctttga tttgtccttt tatgccatcc agtccagtta atcgagcggc 180
cgcccgggca ggtacttgag ttcccatcc aatcaatggt actgcatcac ctttcttgat 240
aatatcagct tttcccaaag gaactgtgaa atcatcgaca ggaacttctt ctacagctgc 300
tctgtaaagc gtttttggtt ccagtagcaa acatggatct ttttctctga tcatggataa 360
tagaagacct ttggccatat ttggacctct tggtagtagca atcttcaatc ctggagtatg 420
tgcaaatat gcctcanggc tttgggaatg ataacaagcc ccgtgtccga ctgcatacaa 480
ngtgctcgca ctgttaaa 498

```

<210> 230

<211> 237

<212> DNA

<213> Ctenocephalides felis

<400> 230

```

ctgctgctgc accggaaca cccctgata ctggcgtatc acaaaattga gaattatggt 60
ggttcaccaa ttgtttaact tctttggcaa ctgctggatc gatttgctg gaatctaaga 120
acaatgtatc ttttttgga gatgccacca ttcctttgta acagtctaact actatggcgt 180
tgtttggcaa cattgtgacc acaaagtcgg attttttggc aacttcggca gccgagg 237

```

<210> 231

<211> 171

<212> DNA

<213> Ctenocephalides felis

<400> 231

```

tgcttgagga aagtgcagtt ggaaaaagtt ctttggtggt aagatttgtc aaggggcagt 60
ttcatgaata tcaagagtct actataggtg ctgcgttttt aactcaaact gtgtgtctgg 120
atgacacaac gggttaaattt gaaatttggg atacggctgg acaagaaagg t 171

```

<210> 232

<211> 315

<212> DNA

<213> Ctenocephalides felis

<400> 232

```

tgatagagtg catggccaat atgaatatcc aaaaatatta taggcctctc attacgatca 60
tcatattgcc caaaagtggg tccgtggtct cgtcgaatgaa aaaattatgg tccacaaaat 120
gatcaaaatc tttcacgccc atttgtctga ccagctctgg atctcgtatc agcaatacag 180
gtttttaaac ttcatagaaa cctgaaaatc tgctatcagg aaaattctca taagctcttc 240
cgtagggtata aatctgattt tccaactgga aaaagtttct ccagggtgctt ccaaggatcg 300
gcacagggtt cagggt                                     315

```

<210> 233

<211> 247

<212> DNA

<213> Ctenocephalides felis

<400> 233

```

agaactactt gcactctttt taggatgtct tttgccacac attctgcgga acatcacttg 60
agcaataaat attcataatt ttgcgaattc cttgatttta aacaagcgca gacataatgt 120
atgtatatat gtatatatat atatatatat attgaatggt agagtcttgg atttgtgtat 180
atttttaga gtttcgaaca agaatccaaa aataatacaa aaaaaaaaaa aaaaaaaaaa 240
aaaaaaaaa                                     247

```

<210> 234

<211> 330

<212> DNA

<213> Ctenocephalides felis

<400> 234

```

tggtgaagaa tttgccggtc gcctagccaa agaaggaata cgatataaat taaagggat 60
ggtagcagac ccagaagaat gtgatatgga agaattggtt agcatgaagt ctataccaaa 120
ttcacttgcg gtgttctgct tagctacgta tggtgaagga gatccaacag ataacgccat 180
ggagttcttc gaatggatcc aaaacggtga cgccgatctc acgggtctta attatgccgt 240
ttttggactt ggaaataaaa cctacgaaca ttacaatgaa gttgcaattt atgttgataa 300
acgattggaa gagttgggag caactagagt                                     330

```

<210> 235

<211> 417

<212> DNA

<213> Ctenocephalides felis

<400> 235

```

aattaaatgc aattatatca attctggcat aaatccaagg cactattttg actattttct 60
aattgcaaaa tatcaagtgt ttaataatgc aaaattttct taacagcatc aaagcaacgc 120
catttgctcg gtagataaaa cggttcaaaag acatgaggga atgggtgtatc gtggccgggtc 180
actctttgaa taggagcctc gagatgcaaa aagcattcct cctgaatgga agcagccagt 240
tcagccccaa agcctccagt gtatggagct tcatgtgcaa taatgcaacg accagtcttc 300
tttactgaat tacaacacgt atcataatcc catggtagta tcgaaacaag atcgataact 360

```

tcacaattag catcaagttt ttctttttaca atctcagcta cttctcgtaa aacatgt 417

<210> 236

<211> 112

<212> DNA

<213> Ctenocephalides felis

<400> 236

ctggtttgca agtcattcca ctccgacatg tttccaatgt tgtttctaag aaatcagngc 60
caatcgcaat gcaaaggttt gctgtctcac aatcctggca ctttatttct cc 112

<210> 237

<211> 325

<212> DNA

<213> Ctenocephalides felis

<400> 237

actgtagtct cgtgaaatth gtttattaaa atccgaaagt aatggataat tcaaaccacc 60
taagccgcct acttttctat ccatgttaat ccatgctaag tggctaaaat gtgaatccgt 120
tgagcatcca acaacctcag caccgatttc ccgaaactgg cctattgcat cactataagc 180
acgaatctcc gttggacaga caaaagtaaa atctaagggg tagaagaaca ataccataata 240
tttgccttta taatctgtta agctgatctt cttaaaatca ccattgacaa ctgccatacc 300
ttcaaatga ggggctggac tttgt 325

<210> 238

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 238

tgaagccctn tgtgccggat gcgaggactg tgcaacggct taggtcctgc catgtttggt 60
gttatatttt atctttttca tggtgatttg aatgaagatc atcttggaat taagatagaa 120
agaaatgaaa ctgctggtgc agatgattat atacaattag ttcctgggcc tccatttggt 180
tttgagcat tgcttgtaat atgtgcactt ttagtagcag ttttcatacc agaagagcac 240
aaagatatata gccgacgttc ttctggtggt tcttttagata cacattttga aattgaacgt 300
ggcagaaaag ttgcaagtcc tctaccacca ttgattcata ccgattctgc acagctataa 360
acatcatata ccatcaccac ctatgaata caattttatt aataatgaat aattaattta 420
aaactagttt gaaacccaat ggttaatgat aatgaaataa ccagatacaa attacagata 480
ttttaaatga gatgtcatat 500

<210> 239

<211> 252

<212> DNA

<213> Ctenocephalides felis

<400> 239

```

acgatacact catcccatTTt tatacagaaa aacttgataa aatagcgaag gctaataatg 60
gccatttagc tcttgaaga ctaacttggg ccgactttgt tttcgccgga gttatcgaat 120
atatgagttt catatctgga acagatttcc ttggaaaata tgcaggattc aagagtgtct 180
ttaataatgt tgcaaatTTt ccgaacgtga aggaatggat cgccaagagg ccaaaaactg 240
atttgaatt gt 252

```

<210> 240

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 240

```

TTTTTTTTTT TTTTTTTTTT TTTTTTTTta ttcaactcat caattacaac atcaacaata 60
gtattaacat cagccatagc accattacca gtatcacgcg acaccaaagt cttagaaatg 120
caaggcactt ntatatacc ccaatctttt aaagtTTTTa cttgtggagc ggttatggg 180
tgatcccaca ttctcgtatt cattgtctgga caaaacagga ggggcttgga tgtgttccag 240
gctcgaactg tgcaggtag gaggttgtca cataaaccat ttgatatttt agccaaagt 300
ttggcgtcca acggtgcaat gcacatgatg tctgccatt tagttaaTc gatgtgtaa 360
acagggtcac cacgtttgtt ccaaaatttc cattcatggt catctgtgta tattttgacg 420
gtttggggta tttctgattg gtcgaagaag tgTTTTgcat attctgttac tataactgaa 480
tttctatatg tatattggag 500

```

<210> 241

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 241

```

aattttattg tatttatata cagataaaaa ttgatatcaa gttagataac aaaatataaa 60
atttaaaaat caaaacatat ttataaattt ttttggcttt atttctagaa tttattcagc 120
attagaaaca ttttgaataa ttttcttgaa tattgtgata cctcgaagga aagtttctgt 180
atctaaatat tcatcatggt catgcagcaa tactggcgtg ttattcatgg gagaaaaacc 240
aaaagccggc agtccaattt ctcttatata tctgctatct gttgcagctg gaaaaacttg 300
tggttcaaga acaagtccca ttcatcagt agctctttta aatgctgtcc aaaatttatt 360
gctttcattc agttcagtg ttgctatcag tggttctttt tgtcaaattc tatttcaaca 420
tccttgccag cttctttgca ccattttcgt atcttttctt ccaattcctt gtggctaagg 480
atgggtgaat acgtatat 498

```

<210> 242

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 242

```

atagtcttgc ttacatgaaa atttgatttt ataaaaatat ttgctattat gcattagcaa 60
gtagcatttt tgcacataaa tcatacatat ttaccatat gttggttata ttacattatt 120
aaagcgtaa ctccatacat ctgagctata tcttttctgt gcttccattt tcttgatgta 180
agcttgagct tgggtgcatt catgttgcc tggacataa tcaacttcaa aactatgttg 240
cgaacatcac ttgccatagt cggggcatct cggcaaatat ataagtggcc attattttca 300
ccaatgacat tccataactc atcaccattt ctctctagta aatgagtgac atattccttt 360
tcagctttat cccttgagaa tgcaacatga attttaagag cgcccttatt aatatattct 420
tgaagntcct cttcatataa gtaatcttca gacttcttgc gcaaccaaag tataagatag 480
tatctccaac agttttatct                                     500

```

<210> 243

<211> 364

<212> DNA

<213> *Ctenocephalides felis*

<400> 243

```

tttttttttt tttttttttt ttttgggagt aaagcacttt taatgcctgn tttcttttagt 60
ncttctatta agtctccaga ttgatgcatt tgcaacatga tgcacaacc ccctacaaat 120
tctccagaaa tataaacttg tggaatagtc ggccaattgg agaaatcctt aataccttgt 180
cttaaaacat catccttcaa tacgtcatga ctctcatatt ccacaccgtg catcctcata 240
atttgaacca ctgcattgct gaaaccacat ttgggggctt caggaacacc cttcatgaaa 300
actaccactt ttttgtcttt aacaagcttg tttattctat ctgagatcgc tgttgtgctg 360
cagt                                     364

```

<210> 244

<211> 535

<212> DNA

<213> *Ctenocephalides felis*

<400> 244

```

rchsnenamt ydnachcksm cratndatst randsncatt tgtcttcaaa ctgtttggag 60
atgacagtta ctcgacatt ctgaggtata aattcatcaa caattgactc tataagttaa 120
gggtcccagt gtgtcattag cgaaggaccg caaagaacct cttcaaattt aaaatgcac 180
agattcttga ctagataaac aacataactt cttggttggt ctttatctct gaacttaaag 240
ttcatatcgn taattgcctt tgattcatca aatatccatt tttgtggtgt ttctttttc 300
agcaaattaa tatactgaaa aactagtctg actatatcat caacatggtt tacgccctct 360
tctgttaa atctgcattag tttgaagaaa ccaaatcccc tctctgaac agcaccgcaa 420
gataagcttg aactccaacc acgtgctttc aaacatgata agagactgcc gggtccctca 480
tgcccaaaaa gatgacctaa ataatttcct ggtgcagatt ttctaaaagg ctcaa 535

```

<210> 245

<211> 497

<212> DNA

<213> *Ctenocephalides felis*

<400> 245

```

ccgactgcac ctgcttctca caattatgat ggtggtttcc aaaccaaatt gatgcacaaa 60
gacttaggct tggcctccgg agtggcatca gcaaccttga caccaattcc tttgggaact 120
ttggcacatc aacttttcac aactgtcatc gcccatggtc ttggggacaa agatttctcc 180
ataatttacg acttcatcca ggaacaagga aagaagaagg cataaattga aaaataaaaa 240
aaaaattgga tactgttgaa ccagaaccag aaccaatttt ctcctaaact aacataatat 300
ggtgcctttg attaaatcaa taccaatggt aatagaaaat ttaaaaaaaaa ttccagagat 360
ccaaaattaa ttaatccatt agagtgcctt cgataaaatc agtgccaatt gatgcaaatt 420
caaaatttaa atatgttttt caggataaaa taaaaaaatt actngttata aaaaaaaaaa 480
aaaaaaaaaa aaaaaaa 497

```

<210> 246

<211> 306

<212> DNA

<213> *Ctenocephalides felis*

<400> 246

```

ggaaagagtt tggagagctg gatctccggc gatnccatcag gagactacaa gaaagttctt 60
ctggacgctg gtcaattaat taaataacaa aaacaaacaa taataggata aactcactta 120
aatgcaaaat cagtgttaatt aaatccatcg atcaatatta ataataatat ataataaaac 180
acaacacata atcagataaa ggacantttt gttaatcgag tagaaaattg aatcantttt 240
ctattccaac antttatttt tattatgtgt tgtgttttta attgttagtc tttttgcaca 300
aaaagt 306

```

<210> 247

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 247

```

attctggctt ggactacaca atggaaaggt ctgcaagagc tatcatgaag accgcaatga 60
aattcaattt gggattggac ttgagaacag cagcatatgt aaactctatt gaaaagatct 120
tcacaactta tgctgaagcc ggtttagcct ttttaagatta attatagcat tttacttata 180
gataacgata ccagtgaata atcattacat caataagctc atagtgcaaa gttccttgcc 240
agtttaattt gttttacata cttaaatcta ttaatctgta catgaaaaaa tcaactcata 300
gaacataatg taaatgttat aatatttgca caatcaaagt aataatgtaa gcacgcaata 360
tgtgaagaac gtgaatggta ataactttta tacatttatt catttaatat aatgaataa 420
atgtgtaagt ttgaattatg gtactttaat atgnattcaa gcataaattt cagcgtgata 480
attttagttc gcgcgtcg 498

```

<210> 248

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 248

```

ctnagctcga ataatttcag tattatcacc caaaagttaa tttaaatgc cgacatacaa 60
gttgacatac ttcaacgtta aggccttggc tgaaccattg cgcttggtgt tgtcttatgg 120
aggagccgat tttgaagacg tcaggttgga gaaggaaaac tggccagcag ttaaaaacac 180
attcccattc ggacaagtcc cagttttgga aatcgacggt aaacaaataa accaaagctt 240
ggcaattgct cggatatctg gcaaacaatt caacttgga ggcaaagatg ccttagaaga 300
tttggaatt gatgccatcg ttgattcaat gaacgatttc agactaaagg ctgctgtcgt 360
tatttatgaa caagatgaag cagtgaagc caagaaagtc gaacaattga ccaaagaagt 420
agtaccattc tactttgaaa aattcgaggc tatcgccaaa aagacaatgg catttagctt 480
tgggaaaatt ncctgggcag attcgtgctg ctgtcaattc gaacatggac ttatggccga 540
ctgttattc 549

```

<210> 249

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 249

```

ttattatattt gttatatgtt cttgatgatt cttttggtat tctggttctt tctgganccg 60
tgatgtttac gtaatatata ccaaaacgct ctgtgaatcc acgaagccat tcaaaattgt 120
ctataatgct ccatagggca tagcctttaa cattgcagtt atcaataatt atggctttga 180
gcatttcatt caagtaacta caaatgtaat gaactcnatc atgatcatcc aattgaccat 240
gatctgagta tccgttttcg gtaactatta tttcaattcc agggatttca ttttgaaccc 300
attttaaaag ttttcgaaat cttcttgga caactttta ccaagatgat gctgcaactg 360
gccatgaggg gtccgattct aattttactt tctgatcagt ataccagggtg ttcggctttc 420
ctgaaattgc attggatgct aggcgagatg tataatgggt taatccaaga aaatcagcaa 480
gtgcctttaa tatgatca 498

```

<210> 250

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 250

```

ttccgatctt tngtttatga caccatatca tctcgagaag ttacaggaac tgcaagatat 60
gatatgatgc agttgttaat tcaagctaaa aaaggaactc ttcaagacga tgatttaggg 120
gtaactgctg cacgaaataa agaattaaca ggcatgata taacatccca agctttantt 180
ttcctcataa ctggagtaat aacttccact tcaacaatgg gtttcggggc ctatgaaata 240
gcaacaacg aagaaattca gaaaaattg atagaggaag tagatgaggt tagaaagaag 300
cataaagggt aattatctta tgagataatt gataagatgg attatttagg cagagtaata 360
tcagaaactt tgcggaaatg gccgccggga attattgcta ggaattgtgt gcaaccttat 420
acaatcacgg ataataaaaa tagaatcaca tttaattgcg atccaggagc tgtnatatat 480
gttcccacaa tagccatt 498

```

<210> 251
 <211> 175
 <212> DNA
 <213> Ctenocephalides felis

<400> 251
 cattctactt tgaaaaattc gaggtatcg caaaaaagaa caatggacat ttagctttgg 60
 gaaaattgac ctgggcagat ttcgtgctgg ctgggtcaatt cgaagcatgg aactttatgg 120
 cccgcactga tttattcgcc aacaccccct cattgaaggc tggtatcaac aatgt 175

<210> 252
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 252
 ctttgacctt atatcatttt gcaccaagtt ttccgtcacg agcagcgctg ttaactatta 60
 gagcactaaa tcttaagggt gatataaaag aagtaaactt gtttgctaaa gagcaattta 120
 aaccagaatt tttgaagatt aaccacaac atttgtttcc aacattagat gacaatgggt 180
 ttgttctttg ggaaagtcgg gctatagcta cttacttggg ccaggcttat gggggtgaaa 240
 aatacagttc cttgtatcct caagctgcta aagaaaaagc agttgttgat cagagattat 300
 actttgatgc tggagtttta ttctctagaa ttcgagccat ttgctttcct attctatatt 360
 tgggagaaac tacgatttca caagacaaaa aagaccaact aaatgaagca tttgggtatc 420
 tagatggttt tcttgcnaaa caaagtgggt agctggagac aactttaccg tacagataat 480
 gcattctggc ttctgttcta gcatacaagc tgtggttcga tatttcnaat ccctctgtgc 540
 tctgggaag 549

<210> 253
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 253
 atanattaga aaaatgttag caagaccctt actgccacaa aatccaaaac aagccccttc 60
 acattctgaa tttgtgatca gtgaccgtgg gtatggcaaa gattttgtaa aattattaca 120
 tgttaaacga gatggagaaa cacatcatat tagagaattt gaagttggaa ctcatattgaa 180
 acttgcttcg gatgtagatt acctaaaggg tgacaatgtc gatatagtag ccacagactc 240
 tcaaaaaaat acagtgtacc ttttggttaa ccaacatggg gtgaataccc ccgaagaatt 300
 tggcttggtt ttatgcagac actttttgca cacctacccc catgttctag aatgcagtg 360
 cactgtggag atgtaccctt gggaaagaat taagggtagt ggtcaaccag aaaggcagca 420
 taagcatgct tttattttta acccttcggc agtcagacat tgtgtggtac acagaaaaaa 480
 tacgaactcc ggcgtcgaag ttgtttgaag gatctcgtgt ctcaaaacac gcatccgatt 540
 cctggntcg 549

<210> 254

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 254

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gaattattat catttgcatt cgctttactt ggcttgcata agtacgattg atttgggtgct 60
aattcgattc agttttgcat cagtcacagt caaagtcggt aataaaatat ggttactaaa 120
gcagtttgcg ttttaaaccg ggaagttaag ggaaccattt acttcgatca aagcgggtcca 180
gaagcacctg tcacactaac aggatgcgtt agtgggttaa gcaagggtga tcacgggttc 240
cacatccacg aattcgggtga cagcacaat ggatgtattt cagccgggcc acattttaat 300
ccccacggtg aagaccatgg aggacctgat tctgctatca gacatgtcgg cgacttggga 360
aatctttagt ctgatgccga tggaaacgct aaagtgaata taaccgacag tcaaatttcc 420
ttacaaggct tatgagcgtt ataggcagaa ca'tgggtgtc atgctgatcc cgatgatctt 480
ggcttangtg gcatgaactt acaagaccct ggnatgctgg actcgatggn tgngtgtatt 540
ggattgcaa                                     549

```

<210> 255

<211> 502

<212> DNA

<213> Ctenocephalides felis

<400> 255

```

tgatgtttgt tttatgatgg atactcattg ataccgctaa taatcaaatt agcttgttga 60
ttcagtcacg ttcagtcgat tcatttgcg gcctgtgtga ccttttattt ttcgatacat 120
tgctacatat taaagattgt taacaatgcc agcctacaag ttaacttatt tcctgtgaa 180
ggctctngct gaacctttac gtatgctaata ttcttatgga ggagaagatt ttgaagatta 240
ccgattcaat cgtgaagatt ggccttcaat caaaccaact atgccttttg gtcaagtgcc 300
agttcttgaa tgggatggcc gtaaaatgaa ccaaagtgtt gccttgtgtc gttacctagg 360
aaagaaatac aatcttgacg gaagtactga tcttgagaat cttgaaattg atgctattgt 420
ggacacagtt catgatttta gagcaaagct agctgcagca cattacgaag cagatgaggc 480
agtaaaaaaa aaaaaaaaaa aa                                     502

```

<210> 256

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 256

```

gtttaagaag tagtagaaac agatttgtaa aagcagttac aaatggcacc tattggagaa 60
ccagaatatg atcttgtggt tatcgaggga ggctctggcg gattagcttg tgccaaagaa 120
gcagtaaatt tgggagctaa agtagcagtc ttagactatg tagttccttc accacaagga 180
acaaaatggg gcttgggtgg cacatgtgta aatgtgggat gcatacctaa aaaacttatg 240
catcaagcat ctttacttgg agatgctata ttgattctt ccttttatgg atggaaattt 300
gataatcctg agaacacaaa acatgattgg ttttcattaa cagaagctgt tcaaaatcat 360
atcaaaagtg tcaactgggt cactagagta gatctacgag acaagaaaat cgaatatatt 420
aatggctagg atactttaaa gatcaaaatc tattatagct gattaaagaa taaaagttaa 480

```


aaaatattgc tgcaaaaatt tgtatcgagcagg tggaggacgg ctactatccg atttcctgga 540
cactagagt 549

<210> 257

<211> 441

<212> DNA

<213> *Ctenocephalides felis*

<400> 257

catgcaccac tgtggcgggc ttgatgtgaa tcaaattcac tcgttaattc actttggggct 60
ccaaaggccc tcacagtcga caagccagct aacgatgccg caaggtgaga atatgcggga 120
cttcgggtta ttccttcaag acgtttaata tttttgatg tttttaagta tattcttctc 180
acaaatatga aaactactcc aagaacgccg acagctatca aaaataatgg atttacagtt 240
gccgttaata ttaaagcgcc aactatagtc agtattatct gtgatgaatc aagcagggct 300
ttaggtaaaa attcatcaat agcgcccatg tcttttgaat atctgttcat aatccgtcct 360
gaagggtttg tatcaaaaaa tcgcatagtt gtttgtaaaa ttcctttgaa catagaatca 420
tgtaatcmtt gagaaacccg t 441

<210> 258

<211> 438

<212> DNA

<213> *Ctenocephalides felis*

<400> 258

aaggcgcgat aacacagaac gataatgctt aggatatcaa taaagtaaaa ttaacactaa 60
taatgtcgat tctaataat catcagttcg aaatggacgg atccttgctg atccttggtg 120
ccaccacgat agatgatgtt cctggcccag gcacgacatt ccacgttgat caaacgtccc 180
actgtaggtc ttttgaattg aacagcaact aatggactaa gataatctcg ttggtttctg 240
aatggataat aatatccagc aaatcccagc cttggataca tttcaactgg gcccaaattt 300
tctcgatcaa ctggattttc tccttgacac gaaacccaaa tttgttttct ctcatccggc 360
ttgagacttt gtatgtgatc cttcaattcc ataggcatat cttcaggcag cgtcgccaca 420
tcatcataat aatccggt 438

<210> 259

<211> 323

<212> DNA

<213> *Ctenocephalides felis*

<400> 259

catgcctgt gactgccacg acttctctgc tttcactgac attgctgtcg ataatacctt 60
tgaccaatgt gtatttgtca gtgggcgaag atcttgccaa aacacgtaat ttaggccaca 120
ctttatccag cagatgttgt tggacatcac cggtgtgtgc tctaatacgc ctattgaatt 180
cttttcttcc taaaatcaga aaatcttctt ggggtttcaa tattccacat ttcgtagcaa 240
tagaccttgc agtgtttata ttatcaccag ttaccatacg aacagttatt cctgcttttt 300
gacatttacg aatagcatca ggt 323

<210> 260
 <211> 475
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 260
 ggcagctcta ggaggatcaa tcatagacat gagtccaaca aatctaaggt tttcaattgg 60
 gaagttggga tcatcgctgt cgaatttgaa acctaagggg aatttgtctg taggcaacat 120
 gagatcacaa aagcccaata cacgctctcc aagaccgccc aattccagat atgcattatt 180
 gaaagcttct ttcattctct catccagtag tttttccttt cctccaatga agatgggtgga 240
 acatttttct aagattcttt caggagctcc tttcataacc attacatgac ggggggtctga 300
 cgcattctca gtttcgtgaa tggaaacctg gtatttgttt gtggagttaa atggaatttc 360
 acagactttc ttatttcgtt ttcgaataga cataacatct cctaaagcca gttccatata 420
 tttgagaaga gcagcttcag atgcatcanc actgacttct tttttcaaga tgggt 475

<210> 261
 <211> 498
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 261
 acaaaacaaa atttgcac aagccttgcc actttttttg tatcacacag cctgaaaata 60
 tgctgattta gatataatga agataaatag ataatttttt tcatcatga taatctgcct 120
 tttttatata tagaatatta tttattaatt ttgattcgga atatggctta gatttttaaac 180
 ttgtcacctt ttttacagtt catgctcaat ggctaaacat gttcatgtct tttagattat 240
 ttttttacat gcttattcag actttctatt ataacatgcy tcacaaaccc ttttaggttc 300
 atgccaatcc cgttctggaa caggccttct tttcaaagag catttggtgc aaacagcttg 360
 accgcaagca cgacaatggg gccttctttg atatgtttaa aacgtccgtt gctgggtctga 420
 tggtgcagcc atcattgggc ctgttgtatt taaatcacta ttaatgcttg tagtagtana 480
 attacattca gaatcggg 498

<210> 262
 <211> 279
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 262
 ttcaagctat tgcaattact ttgtgtgttg ttattggtat aacactcttt acattacaaa 60
 acaaaactgga tttatcaatg cttccagcag cattgtttac tggactttgc tgtttattgg 120
 taggtggtat cattcagata ttcactcatt caaccatttt tgaattagtg ttatgcagtt 180
 ttggtgcact aatattcagc ttgtttttgc tttatgacac gcatgttatg atgacgacat 240
 tatcaccaga agagtatatt ttggccacaa ttaacttgt 279

<210> 263
<211> 344
<212> DNA
<213> Ctenocephalides felis

<400> 263
aacctaaaaa taagcaatth acatacaaga tcgacacaag tcatgcaacg ggaaatattt 60
taagaactta taaccgaaaa agtagtgggt tgcgaaatag gccactgtgg gcactcacca 120
tttgccctgt attcgtcctg gactttgtag aattctgcta attccttacc cgagcacaaa 180
ggagtatcga cttgggtagt ttcgttaaatt ctggaataat cgacttcgta gcattgtctt 240
tctttattgt agttgacgac tgggtcgaac ctgtggcccc acaatatttc cgtattaatg 300
taacttgatc gagcttgtgt ggtctgtcct gtagattcaa tagt 344

<210> 264
<211> 477
<212> DNA
<213> Ctenocephalides felis

<400> 264
attaatttaa gaatctaattg gacatctttt gttcaacatc tgtgcgttcc aaagctttac 60
aaaaatcatc aaatgagatc atttggtcac cattttgatc agcttctaga atagttcttt 120
cggcaatgct tgacaattgt tcttcaactta tatttgcacc caccatcatg tgtaaaatgg 180
caagaagttc atcccagatc atcatgtcat cattgtccaa gtcatacatt ttgaatgcaa 240
atctcaattt ttcttccctg ctgttcaatt tattttcccg attcttctta atgggtctga 300
aatgtgctaa gacttgcata aactgtaaga aattcacctc gtcacatga ctttgagcaa 360
aaaatgcatg gacaatccta tcacctaaag gatttattgc gagttcgggt attctcaaaa 420
aatcatctcg tgaaagagtt ccacagtctc cagcatctag agatgtgaat cttgagt 477

<210> 265
<211> 377
<212> DNA
<213> Ctenocephalides felis

<400> 265
cnaactttgt cctgttatcc catcgatcat gcgtctagca ttggctatgg ctagatttaa 60
gtccctcctc anaacaaatc cnacaagata ctgagattct ctggaaacaa caactggata 120
tccattgtgc tcagntnctt tcantaaacc ttcaacatca tccacagtca tcgagtcttg 180
agtgtattaca cttaattgtt cattcctctt gggttgcatg acatctgcag cttaaagatgt 240
atgtgcaaat tcacttttac tgccaagaat ggatatccat taagctgtat atgggcatca 300
tatataccct gtctgcaaaa gcatcaccaa cccatttgga agccatagct gctgccatta 360
agggcacgat ataacgt 377

<210> 266
<211> 222
<212> DNA

<213> Ctenocephalides felis

<400> 266

```
tttcttttagt ggtgcactgt agatatccac ttgatcagc gcacacttga tctgggctac 60
aggattcctt aaccggatct gtcctatctt ccggacaata ctgcatttcg ggtgaactgc 120
acgaattcac gcaactaaat ttactttttt tacatttttg ctcgggtttc ggtacaaaat 180
gctatacagt tacatgtcct gcacagccta aggtgcttcc gt 222
```

<210> 267

<211> 209

<212> DNA

<213> Ctenocephalides felis

<400> 267

```
cnaaagaggn ttcaggaagc tcttcttcgt cncctgattt tggancccgga gttgggttcaa 60
ccaattcacc aggatcgtga atctaataaa catgaagaac aattcaacaa gcacatnat 120
nacaagcanc acaaagctga ttatatgaat cacatgagag tcaccgacac ttcngcaatc 180
atggctggtt cttttgctgt gatagcggg 209
```

<210> 268

<211> 178

<212> DNA

<213> Ctenocephalides felis

<400> 268

```
aaccaactag agctaagaaa aaagccagcg atagcataga actgctatgt tcccctccaa 60
ataccactgt tgttttatca tataaaaatg ccatangtat ggagctaata catccaatca 120
ccatcaatat atatatatat atgaagagtc ttttatcctt cctgggtaaa gtttctgt 178
```

<210> 269

<211> 238

<212> DNA

<213> Ctenocephalides felis

<400> 269

```
tttgttttac tttatgtgtt atataaaaaa atattatggt tgaacacagg ctgcgaaata 60
tgataaggca tttaagaatt ttacaattta gattttttta aatccatgaa tatatttggt 120
ctaatacaaaa ttattcattt tacgcttaat tttattgggt gaactaatag atagatagat 180
aaaagatata gagttaatat aaaaatgaag aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 238
```

<210> 270

<211> 326

<212> DNA

<213> Ctenocephalides felis

<400> 270

```

cgcaaggat ggcataatgct ttgttagcaa atgttattcc aacagcagga ttatatgtgg 60
ctttctttcc tgcattgggt tatgtagttt ttgggtcatc cagacatgta tccatgggaa 120
catttgctgt agttagtata atggtaggaa aaattgttca agaatacgcc tattttccag 180
acgggtgtaga gaaaaataca ggagatacga ccacaattcc tgacctgat gtgcaatacn 240
atcctacaga agtggaacc gcagttacat ttctggtggt aatttatctg cttatcatgt 300
ggatttttcg tctaggggct cttagt 326

```

<210> 271

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 271

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tcgcaagaaa tgttactct aggaatatgt aatatatttg gcagtttcgt gaagtcgatc 60
ccaacttggt gtgctttcac cagatcagca gtcagcaatg caagtgggtg tcgctctcca 120
atggcaggct tgtactcagg tactatgacg cttttagcgt taagttttct cactccatac 180
ttttactata ttccgagagc aactctttca tcagtgttga tatgtgctgt tatgttcag 240
tttgattggc aaatagtgt gccaatgtgg cggactaata aattggacgt gttatttatg 300
gggtgtacat ttgctgcac tttatataaa ggagtagaat ttggcttaag tgttggtgta 360
attctgactt tatgtccttt gctctatttg tgggcaaggc ccgaaattaa tcacatatct 420
aagtggacac ccgaaggtct tgaatatcgc gtgtatgcc agaccaggtc tttactttcc 480
ttcggttgac tttttgaaan gagaattgcc aaagttcttt aaattttcng gtccttgatt 540
tagactgtc 549

```

<210> 272

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 272

```

gtnttttcca ttgagtagcg aatttgcccg tcttacaata ttaaactgga attcgttttg 60
ccgggtcgta gtaaccaatt taatataatg gtcctccac catagcaga cttgggaaaa 120
caagctaggg aggtatttaa cagtggctat cttttgggtc ttttcaaatt gaatttgaaa 180
actaaaactg cctctgggggt tgaattcact tcaggaggaa cttctgaaca tgaaactggc 240
aaggatattg gatctttgga gacaaaatac aaagtaagtg attacggtct cactttttct 300
gaaaaatgga acacagacaa tacttttagct acagaagttt ccatacaaga tcaaatagct 360
aaaggtttga aagtatcatt cgactgctct ttcgcaccac aaacgggaag caaaactggg 420
gttttgaaaa ctgcttctta catgatagtgt ttgcagtaaa tgctgatgta aatttgaatt 480
atcaggacct ttgatcaatg ccagcgcagt agtggttatc aagggtggtg ccggtatnaa 540
ctgatttnc 549

```

<210> 273

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 273

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ggcaaaagga tctgccaac ctgcaagccg gcaagaaaga tagttcgaaa cgatccaatt 60
ccagcgatga agcgacgcat gtaaatcata ccggggaatg ggcgaggccg cgcagcgagt 120
cggcgggcga ccctgacgac ggctgcggga acacgaccga ctggggagga acgtacgtca 180
aacgcacggg gttagcggtta tttctgtggt acgcctcatg cggaggagtt cgcgagtggg 240
gcgtagcttg gtggcactca ggcagagagg aatactatga accagatccg gaagaaccgt 300
cagatccttg atacgcgact ccggtctcta tcgagacgcc gttgcagagc tcagtgtcga 360
gatgcacttc cctgaatgtg atacgcgacc catacatgac gacaacggaa gggcgaaact 420
cgcgctgccg ccgacttacc tttcacgcc tcgtcgcgca actactcaag attcggttta 480
caccatctga tcaggctccc ggggaccaga caaagacgga caagatcgca cccttcataa 540
aatgatatac                                     549

```

<210> 274

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 274

```

ggctcttggg cgaagaggct gttaacgatg ataacagtgt ggtggctttg tctcaagcta 60
aaatggacga actgcagcta ttcagaggcg atacagtatt attaaaaggc aaacgcagga 120
aggagacagt ttgcatcggt ctctctgatg atacttgccc cgatgaaaaa atccgtatga 180
acagagttgt acgtaacaac ttgcgtgtcc gcttgtctga tgttgtttct gtgcagcctt 240
gtccagacgt gaagtatgga aagcgaattc atgtgctgcc cattgatgat tctgttgaag 300
gcctaacagg aaatctgttc gaggtctacc tcaagcccta cttcttagaa gcctatcggc 360
caattcacia ggacgacaca tttattgtcc gtggcgggat gagagcaata gaattcaaag 420
tagtcgaaac agatctgctt cttattgatc gtggctcctg acagtcattc attgcgaagg 480
ggatccaatc aagcgtgagg aagagaagag ctcnatgctg cggtatgatg atattgtggg 540
gagaaacat                                     549

```

<210> 275

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 275

```

ttgacaagtt tcgatttggg tagttcttgt acttaatatg gaatcaatct catctgaact 60
gactgaacca caaacaatt ctaattcatt taccgttgat caaatagaaa ttgacatatt 120
gccactata tatgatatac tacgaagtgt tgaaagagat ccacatgata gcgctggcaa 180
aaccagagaa tcacaagatt gcagtgtgaa ggtattagac ttacaaaaga agttagaaaa 240
aattcgaagt caagttactc agctacctgg aattgattat aataaagagg aacaacttca 300
atatttagaa acacttagga aacaattaaa acttaagcaa gagcttttgc acaatacag 360
gactatgtac acatttgatt caatgaaaat ataaattgtt taaaatgcct ctgcgatctc 420
tcatgaatta tttgctgaat aacgcggttt agttcagaag ttgctgaatc ttatccagtc 480

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gaagagctgg cagttagcca tttcgctatg atagatcaaa atcaatttag ggacacactg 540
agaagctgg 549

<210> 276

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 276

ggctcgatat cgctggaaaa actttattat cgatgtgatt tatcaatggt ttcgtgagaa 60
tattctattt gctttgacga aaacaaaaaa ctgattagtt tattaataaa atagtatatg 120
ttaatatattg ctgattggcg atgacggcag agaaagcggg cttttccgac agtcttctga 180
gtcggacggg agagcaggtc cacagaccaa catttcgctc tcatgccaaa gactgtgcta 240
gtgcttggtt caccagaaaa accttagaaa ggcctctgcc tatagtaa at tggttaccga 300
aatacacctg ggaaaaatta ggcagagatg ccattgcagg ttgacagta ggtttgacag 360
caataccaca aggtattgca tatgctgtag ttgcaggact agaacctcag tatggtttat 420
atgctgggtt catgggatgt tctgtgtacat attcctagga ggatgcaaag atgtgacata 480
ggcccacggn catatggctc tatggtgcac gctatgtcaa gactgggcct gatttgcaat 540
ctgcccttt 549

<210> 277

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 277

aaagtgatgc aacaattatt ttcaaaatac aaaagtgtta aaaaatgggc gttaaaaaata 60
tatatttata ctgcattctg atatgcctgc tacattatgc atcttatacc aaaactgaat 120
ctattaccaa caattctttg gaagaattgt acacaaacac ttctgccaaa acagattcca 180
ttactctttt atcaaaaacc agtctaccgc ctgatcaaaa tgccacgatt gaaaatcctg 240
atccagtgtc tcctgaaaag ggctccgctg aacaagaaca acacagctcg atgtctatat 300
tcttcgtgct ttgtgtgctg gcttttagga ttctttta at tcatttcctg ttacaaacag 360
ggtttcagta ttacctgaa agtattgttg tagttttctt aggtgcttta atcggcttga 420
taattaattt aatgtcgtct aaaaatattg caaattggag aatgaagaac cttttcacc 480
acagcgtttt cttagtgtc tccgctataa tattgaatcc ggtatattgc ataaggnatt 540
ttttcaaat 549

<210> 278

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 278

cttgcttaga aaaccatacg gaagaaccaa acctctcata tctcgtacca tgatgaaaaa 60
tatacttggg caatctgtat atcaactaac agttatatcc aactgcttt ttgttggtga 120

```

taagctctta gacattgact caggaagagg agcagactac ggttcattgc caactcaaca 180
ttttacagta atttttaatg cttttgact aatgacttta tttaatgaat ttaatgctcg 240
taagattcat ggacagcgta atgttttga aggcattttt acaaaccac ttttttacac 300
tatttgggta ggaaccgctg ttgcacatgt tgtcattgta caatacggag atctggcatt 360
ttcaacaaaa gggctgaatc tcgagcaatg gcttgggtgct gttttcggct tggtcactat 420
tatggggaca aattgtaccc agtntacaa gaaagattcc taaaattctt cgtagtntac 480
ttnttatttg atacacttca atgcaagaat aactagttta gttctantca taagaatgca 540
nathtagtg
549

```

<210> 279

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 279

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aattcttgtg tgtagaataa aaaacatatt tgaacggtc atataataaa aagtgaaca 60
tgtcagatga aatgcaagaa aacggaacta ttaatggtga agtgccagaa attgaactta 120
tcattaaggc atccaccata gatggtcgac gtaaaaggagc ttgtttattt tgtcaagaat 180
attttatgga tttgtacctg ctagcagaac ttaaaactat cagtttaaag gttacaacag 240
tagacatgca aaaacctcca ccggtttcc gtacaaattt tgaagcgacg ccgccgcca 300
ttctaatacg caatggcctg ccgtgctaga aaacgacaaa atcgaaacgc acatcatgaa 360
gagtgccctt ggaggacaca atctttttgt tcaggataaa gaagtggcaa cactcatgaa 420
gaatttgtct ctaaattgaa ntggtttagt caaaaaggat gcgtaaaaag caatagtctg 480
tgaccctga ggaaaatcaa cgccatttgg gcggcgcgga cgagattcta cggcgaccca 540
tgtntgntc
549

```

<210> 280

<211> 269

<212> DNA

<213> Ctenocephalides felis

<400> 280

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agatctacta atgccgcgtt taccactgtc acagcaattc cgcaaaccag caaccacaaa 60
tataaatatg atgctattgt taaatgttca ataatgcac aaattattcc acaaaccacg 120
catgagacca tcacgaatac aagaattgga agctttccca cagagttaat aatagcacct 180
attatgggaa atccaatcgc atatccagct tccaacatta aagaatgcat aaatgcctgt 240
tcttcattg tgtctttaca ctcggtcgt
269

```

<210> 281

<211> 489

<212> DNA

<213> Ctenocephalides felis

<400> 281

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catcaaatat tgaaaggaat cgatcatgtt caaatgcctg gaaaagttag cagaaaagcc 60

```



```

caagagttga ttagaaaact ctgtagacct gcacctgcgg agagactagg atatcaaaaa 120
aatggattgc aggatgttaa aaaccattca tggattcat cagtttcatt cgactgggtg 180
agtctcaa at ctcaagaaat gcctgcgcca ctggtccgca cagtagaaaa ttcaacagat 240
atgagaaact ttgacaaatt cccgaagaac agagaatttc cacctgatga attatcaggt 300
ttcgatataa acttttaaaa acactaattt gcacacctga taatgttaca taaaatctac 360
gtggctgcag cgctgatata agtaattggg attataaata cagatgtcat tcttgaatat 420
aagaaattat ttatatattt gtaacgataa tattgaaata aattgtttta tatttcgata 480
atataaaaa 489

```

<210> 282

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 282

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aacatgccct cagcgatttc cttanaaata cgatacatta atgatttatt taaatgatca 60
agtccttga gatagtttaa angacttcct ctttttacgt aacttgtaat cgtccaaatt 120
tcttcagaan tgggtgatat accgaaaaaa catgacaaac gatgatgatc tagtgttttc 180
atgatcatag cttccgattt aattatatct aatgaattca cacgataaat gcttatttta 240
tgaactgtca catcgatttt cttctttttc catagtgtt gcgaaacagg attataagat 300
cctctactca agttagactt anactcaata tcttcaactg gtataattat ttcacacca 360
tgactattat aatcgctctg cttagncaa angatttggt aatttaatgc cactgtatc 420
cancgggtta tgtntgtnnn ttncacacaa gcgcangcat actggggaaa actatgtnga 480
attcantaga gtaccgtc 498

```

<210> 283

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 283

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atcttttagc ccaacattcg attccaacca caattgatta agaccgcaat cactcaaato 60
caaccagttg agaagactga gaggaaggaa tacttttagct tcaacggtct tcaatggatt 120
gcctgataac aaaagtttgt ttaaaacttt actattttta aatattctag tatcgagttt 180
gttgatttta ttattactca aatctaagct gattaaattg cgcataatgcc agaaaatatt 240
atattttaaa tctttgatcg agttctgagc taaattcagt tgagccatgg aaggcatttc 300
agcaaagtga tgtttgctta agctaagtaa tccgcaattt actgcttcaa acatataagt 360
ggtaaaccgat gacaaatttg aatgaaatct aggcgaattc atgagattcg ggttggttaga 420
aattttaata acatccaaat gatcattatt ttggaagacg ttgtcaggta agaaagtaag 480
tagattatgt gtcaagtc 498

```

<210> 284

<211> 129

<212> DNA

<213> *Ctenocephalides felis*

<400> 284

atcgatcttt ggcggctaaa catatcttgc tgagcgaagc cggccgtata gaaatatgtg 60
 gctttaagga aatgagagtt cttcctgagg gccaaaatta tataaaagaa aatctcgaca 120
 atcctaagt 129

<210> 285

<211> 424

<212> DNA

<213> *Ctenocephalides felis*

<400> 285

gtaaacaatcc atacatcttag ggcagtagga ttttaccata gcctctccag gcacatcaga 60
 aagacctaata ggcagcatag gctgactatc gcagtaaaact ctagggaat atccgaagtc 120
 tccagattgg tatttttcta tcatttgagc tatacctcta tttgttaaaa tatatctggc 180
 gtgaattaga ccatataaca tctctgcagc ttgttctatt gcactctgact gatttggatt 240
 atcatctatt tcatcatcag gtttaaatct aatatcatat ccaaggcttg tctatatcgt 300
 ggaatttgct cattaaggcc tgtagattg aatttatcct gtatatagtc ttcattccacc 360
 tcgcaaaaga attcatttcc tcgtagacca caaaaccaag atatccatga gacctcctca 420
 gaac 424

<210> 286

<211> 204

<212> DNA

<213> *Ctenocephalides felis*

<400> 286

ggacggccga ctggtccgaa ttatgctcgg cagtggttcg attcaaatga tcccgtacg 60
 ttcgacatcc aaatgataaa cactatctaa tcaagtgatg ttgtttaatt aagcaagtgt 120
 tagttcgaat tcatttttgt gttttgtgta tattataata aatggacccc gaaattcctc 180
 tgaaggtgt gactccgggt ttgt 204

<210> 287

<211> 446

<212> DNA

<213> *Ctenocephalides felis*

<400> 287

acacgcacga gcactataat cactttgaaa cttcatacac cgattgatgt catgtcgatg 60
 tgtggtaaat gtcagacag atcacagtag cagcaggaag gttatagggt gtcagattg 120
 tatcctgggt cttgacacat gtattactga tgtttcactt ggttttctgt ggcaattgat 180
 ggtgggttac ggctgtcgtt acagcattct gcaactgtgg tcctgatgag cttgaggact 240
 ctatctgctt tcggtgactt atttccaaat ctgctaaacg tttccataat tcatctcgtt 300
 cgcgctcgcg tttcttttct tctgtcgttc tcctttataa cttgcagtca attcatcaaa 360
 tagtttacta ttcatttcca tgaatgnttt taagacatta taaactaaag cacaattgct 420

gattccaagc tcttttgaaa tgcggt

446

<210> 288

<211> 268

<212> DNA

<213> Ctenocephalides felis

<400> 288

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ccacaggaaa ggaggtagct atcaaaatta ttgacaaaac acagctcaat cctgggtcgc 60
ttcaaaaact tttccgagag gtgcgcatca tgaaaatgtt ggatcaccca aatattgtaa 120
aactgtttca agtgattgag acagaaaaaa ctttatatct agtaatggaa tatgcatcag 180
gtggtgaagt gtttgattat cttgttcttc atggtaggat gaaagaaaag gaagctagag 240
ccaaatttag gcaaattgtt agcgctgt 268

```

<210> 289

<211> 465

<212> DNA

<213> Ctenocephalides felis

<400> 289

```

cggcaaatgt ccaagctttt ttgcctggat ccacacgttt ggcaaatcca aagtcgacca 60
gtttgatgta tccttttagta tctagcatga gattttcagg ttttaaata caagaagatca 120
tatttttgtc gtgtaaatat tcgaaagctt caataacaca agcggttata aatctagaag 180
ttttttcatc aaaacatttt gctttatgca acgcgtcca gacatcacct cccagacatg 240
cttccattag gaaatacaag tatttggtat ctttatatgt gttgtataat ctgcatatga 300
atgggctgtc acaactagcc ataacatgct tctcattgta aacgtgctgc tgttggtgct 360
gctgaacaat atcaactttc tggagacatt ttagagcaaa tgtcttgtct ggtgtggatg 420
gatgactgac ccagttccac gcgaccaaat ccgcaacgcc caaag 465

```

<210> 290

<211> 294

<212> DNA

<213> Ctenocephalides felis

<400> 290

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ctatatcttg gctttctaaa tactccatgc cgtcaataat ctgccgacaa tatgtaggga 60
aaagttcttc gtctataata atattctctt tctctcttaa ataatgcaac aaaatgtagt 120
ctagtttttc agtaatgatg taatgttttg gagtttcgat ccaggcaaga acttgctgta 180
tatttggatg tttcagtgat ttacttaaatt ttatctctct tttaaaattt tcatgttctt 240
gactttccac gccatctatt gtggttggtta ccaagagtgg ctttctcgaa atgt 294

```

<210> 291

<211> 203

<212> DNA

<213> Ctenocephalides felis

<400> 291

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gaaaagcagc aggatttgtt gttttccgac gactgtctga cacaattcaa tatctactac 60
tacaagcttc ttacgcaaat tttcattgga gtccaccaa aggccattta aaacgcaacg 120
aaaatgaatt tgatgcgga cttcgagaaa cattagagga aacaggtctt tgcaaaagcg 180
atattaaaat atttaaagat tgt 203
```

<210> 292

<211> 283

<212> DNA

<213> Ctenocephalides felis

<400> 292

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catcactgag aagaactctt cggctacgga atatcttcat tggaggcgcg ttgttggtgc 60
acgcagcatt aacaaggctt ttgcaattca gcataatgac cagaagaaaa atacaggtag 120
tgcttttcat tttgattcag taatagatta cttcttgaga tagataataa tactgtggag 180
aagtaacctt cacatgaaat aggcctgggt cttataatta ctggctttgt tctggatatt 240
agaaatctga tcacaaaatt ttattaagtt attattatgt taa 283
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<210> 293

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 293

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agnnttgcgt annaanccct nannaagctt cntcgagngc nngaattcgg cttagcgtgg 60
tcgcggggccg ggnacaagt atcaaacatg ggctacgggg gaccgtaga ttccaacat 120
tctacaagg ggcncnttct ttantaaaat atcatccaga tttcaaaac gaccgatgga 180
ttngcccgg tnaaaaccag gcacacctg aactaacgt ttagttagcg gnggaggngg 240
cacaatgcag gatgaccagg tcaaaccgag gnccttgagg gtcacatggn ccatgaagac 300
cacaagcagt agggacccn atgagataat gnttgaaatt cgaaaagttt tggatgcaa 360
tggatgcgat tatgaacaac gtgaaagggn tttactactt tgtgtcacgg agatctatca 420
cggatagttt agtacaatgg gaaatagaag tctgnaaatt ggcaaacttt ccttggatgg 480
aggtcgattc aaacgcattt 500
```

<210> 294

<211> 302

<212> DNA

<213> Ctenocephalides felis

<400> 294

```
actgtcatca tcgcttaact ccagtaatat attatctgat ttcagatctc tatgtgcaat 60
tccataagct gataaatggg caatcgcttc caaaagttga gcaaacaaaa ttatggacgt 120
cctcattgat attttattac tactaagata atcatgaaga ctgcaatcgt atctcttcat 180
```

taacaaaaac aatgacatat ttctaccata accatcactg ttaattcttt gtggtaaagc 240
 tgatggaaac aaactggctg ctagtggtga accagttgga attctatcag caaacacgct 300
 gt 302

<210> 295

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 295

aagctttctt tttttttttt tttttttttt tttaaatcgg tccaaaacca tcattggntt 60
 attcatnngt agaaatngag atgttaaaat tgactccaat cctnttaata atatcggtg 120
 ctaccctact tccaaattct gaacaagttt gtaaagtatt gtcctgcaag aatttatata 180
 agaagccagc gaggaatgca tcacctgcac ctgttgatn ttttataagc gccgatggaa 240
 tttctcgat ttcaacagac cattttgcaa atcttttcat cttgttggtg aaatatggta 300
 actggttttg aagcatcagt tgctacaact atcttacttt tgaagctagt gcatttcttc 360
 tttagaggct tgtaaaacttt aatcaaatgc tccataacac tatccaagtt attgaaatta 420
 taagccttgc ctaattctaa aaattgctca gcggnttcca aagactacat ctgcagattc 480
 tgctagcgtt ttacatt 498

<210> 296

<211> 227

<212> DNA

<213> Ctenocephalides felis

<400> 296

cactacctat tgatcctgct atgtttccaa cgtggcctgc aaaaagtga cttggaacaa 60
 gacgtgcaact tgccagtagt cctaaaccac cttcaggagg tgaccagttt aaaacattgg 120
 ggggaaggatg aggagccgat gcgtattggg gtgaacgagc atctttgttg gatacaagaa 180
 acattccaat ggggtgcaggc ttctcactca agttttaata aattcgt 227

<210> 297

<211> 452

<212> DNA

<213> Ctenocephalides felis

<400> 297

ggcacgaata tttgtcttca taatcattac ccgctcttgt atattgagtt ttagggatca 60
 acttcttcac ataattctca tttataaaac gttggaacaa aactccaaat gttgttttcg 120
 ctttcgaatg tcgaaatagt gcataaaatt catcgaagtc caaaaaccgt gaatgattag 180
 agtcacccaa actcataaga tactgagtcg cagattctgg aaactcatta ttatattcac 240
 ttctctctac aattctttgt aattctctga cagatatcaa gttatcatta tctgtgtcat 300
 actttcaaaa tacaattaat tattgttaac gtgcatacat aaactttgat ttattataat 360
 tttaccttcc cgaataggta tctgatatat tgatcagttt ccctcaacgg tatattatat 420
 tccatctcta attgtgatat ccttctctga gt 452

<210> 298

<211> 138

<212> DNA

<213> Ctenocephalides felis

<400> 298

```

ttagatacaa gtatttctga tgatcttagg aagtatagaa cctactctgg aagtaatggt 60
agagatttat taagagctat aaggaataag aagcatcatt atcatcaact ctcacctgat 120
gcattgaaag ttttgggt                                     138

```

<210> 299

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 299

```

aatcattctc tctgatatgt gtatcaaaat ggcgctatca actggccaaa ttgatgtcct 60
tcacaatctg cacaaaatta gagaacaaag ggccaacttg gtggacaaca ctaatcaatt 120
caaaatagtt catatgcttg ttttggaatg cttatttgga gagtctacaa gtattccatg 180
tgaacatttg ctaaaaactg tagccgaaat gaaaagtcgt aatgaaatgt tcaaaatgtg 240
gaaaaaaata gacgatgtcg catggaaaga tgacttcgtt aaaggaatag acagtgaacc 300
atctcaagaa gatattgcca gaaaagagaa tagaaataaa attgtgccag gaagacgagg 360
tcgtgtatgt ttgtcaagat ttccattgac aaaagcagat tcggattata taaatgcaat 420
atgtgtagat ggatttcaaa caaaacgtca atttatcggt acgcattttt ctttacatca 480
tacagttgct gatttctg                                     498

```

<210> 300

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 300

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cttntgttta aatattgtat tttattanat tattcgttgn tattaacgct gngactatag 60
ataatatttt taacaattta taattcaatg ggtgttagaa ctgcatgcag gntatttaat 120
taagaatggg cgcttattta tccaagcctg ttgtggaaaa gcattcgagc gatgaatcga 180
ataacatatt aacttgtgca gntagtagca tgcanggatg gagaataact caagaggatg 240
cacataacct gatattaaac ttgacaagg atacatcact ctttgctggt tatgatgggc 300
atgggggtgc cgaagtggct aaatactgtg ctgaaaagtt gcctgattcc atcaaggaaa 360
ctcaagctta taaaaatggg gatntancac aaggtcttaa agatgctttc cttagtntg 420
atgctccatt gcagaanaaa aagtcattga aatactcaaa aattatccac ttgataatg 480
acattaacan gcaagtcagn tgaatggact gangatgacg gtattanatg atcctcagaa 540
tctgngaag                                     549

```

<210> 301
 <211> 547
 <212> DNA
 <213> Ctenocephalides felis

<400> 301
 agtttctact tttgacatct tcattcattg tgccgacaaa atgttgtaaa atgctgtttt 60
 ataagtgaat tttatacgaa taacttagaa ttatatattt ttttattgag tgcattgtgtg 120
 tgttcgagaa gtctcaaagg tcaatttgat aaaagtacaa gaggacctgc aagatttttg 180
 taaagaaatt atataataag tgttttatta atatatttta tacaatggct ttgaacaaat 240
 tgagtatcga gagggtggat ttggaaggca agaaagttct tatgagggtt gatttcaacg 300
 ttccgttaaa aaacggtgtt atcacgaaca atcaaagaat agtggcagct ttggatacga 360
 ttaagtcgct ttgaataaaa atgctttgag tgttattctg atgagccatt taggacgtcc 420
 tgatggcttc taaaaaggaa tacagtttga gacctgtgcg aggaattgaa gaactattaa 480
 acagggatgt gcatttttg aagactgtgt gcccacaaagt agacaagagt gcataatgca 540
 agcaagg 547

<210> 302
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 302
 aagcnggtac caatgccgaa attgaattaa aacgcggcga aaccatcaaa ctgaccaccg 60
 acagagccta ttccgaacga tgcaccgatc aaattttata cttggattat gaaaacattg 120
 ttagagtggg taaaccagga acaaggattt tcatcgatga tggcttaatt agtgtcatag 180
 tgcaaaagtgt agcaacaaat accttgattt gccaaattga aaatgggtggc cttctaggaa 240
 gccgtaaaagg tgtcaatcta ccaggagttg aagtcgattt accagcactc tccgaaaaag 300
 acaagcaaga ctttcgtttt ggaattgagc acgacgttga tatgattttt gcttctttca 360
 ttcgagatgc caacgcttta gatgaaatca gagcagtatt aggagaaaga ggacgccgaa 420
 ttaaagttat ctctaaaata gaaaacaaac aaggagtagc taatgcagat gagatcatta 480
 gggcttccga tggttcatgg tgccgaggtg nttgggaata gaaatccgca gagaaattgt 540
 cttgacaaa 549

<210> 303
 <211> 547
 <212> DNA
 <213> Ctenocephalides felis

<400> 303
 aatataataa tgatggtata cgtttgatag gttctactgc tcagttttta atacagtatt 60
 atattatcga attctcataa ttctatctaa ttttgagctg gatagagtgc tgattgaaat 120
 atccaaattt cagccttgct acaatcagaa tgactgataa tagcgattta gatagacaaa 180
 ttgaacaatt aaaaagatgt gagattatta aagaagctga agtaaaggct ctttgtgcta 240
 aagccagaga aatttttgta gaagaaagca atgttcaacg agttgattca cccgtcacag 300
 tttgtgggga tattcatgga cagttctatg atttgaagga gcttttcaaa gtgggtggtg 360

atgttcccga aacaaactat ttgtttatgg gtgattttgt ggatagagga ttttacagtg 420
 tggaaacatt tttattgttg ttagctttta aagttcgata tcctgatcga attcattaat 480
 aagaggaaat catgaatcaa gacaatacac aagtatatgg atttatgatg aatgcttaga 540
 aatatgg 547

<210> 304

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 304

aaanaattga tcccaatgga gatccatcac attatgatat aagatctgat gtctggtcac 60
 ttggtatttc tttattggaa ttggcaactg gtagatttcc ttacaataca tggggaacac 120
 cttttgaaca actaaaacag gttgtgaaag atgatcctcc tcgtttacca gccggtgtat 180
 atagtgaaca atttgaaaac ttgatagaac aatgtttaca aaaacaattt gaacgtagac 240
 ccaattatca acagttattg cagcatgaat tttgtgtgac ccatcgagat aaaccaacag 300
 atgttgcac atttgtgaaa gatatactaa cgtttgatac agtacaataa atttgttctt 360
 actaatattt agtattaaac taataaatta taataatgta gttaacataa cttgttgctg 420
 ttagattttt tgaagttata atcctgaaac ttgcaagatt tgtttcaa atgtaaaattat 480
 atataaaatc atatttaaca tcatttacat catatacatg atattttgtt aaataaacct 540
 caattctcg 549

<210> 305

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 305

aactcacgca actccagccg cgctctacgc gagaagcggt caccgggatt gggaatgcga 60
 tgtgtccgtg cccgaaaatt tcaggagat gagcggtta aaggacatcg ccaggcaact 120
 tgtgcaagaa gcaccaggca ataaattgaa cgtaattttg gcgggtggaa gcgacatgat 180
 gggcagcagc cgcaaccggg agtcggcgtg ccaacgcgga gatggacaag atttggttagc 240
 agaatggctt cattcgagga ctagcttgaa ctcccagggc gtctatgtta atacgactgg 300
 tggacttgaa aaggcgaaag tgaatgagat cgattacttg atgggtatat ttgcagcaga 360
 tcatttgccc tacaatgcag tgagggataa gggtccta atggaactccgt ctttagcaag 420
 gatgacaaa caagcattag gaatattaca aaggccagat aaaggattcg tttaatgggtg 480
 aaggaggcgt attgatcacg ccatcataaa attttnacaa ttagctcttg cgaactgctg 540
 aatttgcga 549

<210> 306

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 306


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gaaaaataga acattatcga cgtttaaatt tctccaaaat tgtaggtta tgcaaaaact 60
ttgtccacaa agactctgct actacaccag agattgatac cattttctca aatggacgca 120
atttaactat atcaactggc aaatacgctc gattttgcga tggatcagct gttgccaaaa 180
ttggtgatac ttcagttatg gttacggctg tgtcaaaacc aaagtctcat aatggtggga 240
attttcttcc acttggtggtt gattacaaac aaaaatcagc tgcggcagga cgcattccta 300
cgaatttctt aagaagagaa ctagggtcaa cagaaactga tatattaaca tccagggttaa 360
tagatagatg cctcaggcca ttatttccac ctaactatct caatgaaacc caattagttt 420
gtaattcggt agccgtgatt caatatacaa tgctgatgtg ccagctatta atgctgttca 480
gctgtttgcg taagtgatta ccatggaatg gccaattgng ctgtaggatc ggttaaaaga 540
ttcgactga 549

```

<210> 307

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 307

```

ctcagtttta gttcaacagc aggcgaagtt atcgtttccg gagcagaaga cggtaaatat 60
cgtgttttga acttgcaagg cgcacaactg tatgggggca atgcacacca tcaagccgcc 120
gtgacttctc ttgcttgggc tccatccgga gcttattttg ctctcggtc ttacaacgga 180
attcgctgt ggcacagcgc tgggtggtcg catgctttga ataaagccga aactggttct 240
ctgtacagca ttgcatggtc acaagacgga actcgtattg cagcagcatg tgccaatgga 300
catgttttat tcggaaatat tatagaaaag gaattgtgca aatacagcta taacattggt 360
ctaactacag ctagtacttt gtcagtgagc agtataattg atacaacaat aaatgaagtg 420
cttgaattta cagatcgagt aacaaatttt gatataaact ctgagcatct gtggtcacta 480
caccaactca atgcntatat ataaaattga cgatttattc acccacagtg ttgagttgaa 540
ggatggtgta 550

```

<210> 308

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 308

```

aaaatctttc atcatgtagc gtataggaga aatttatttg cctaaaatct gcgttattga 60
tctttggctt actaatcaaa agtgatcgac ttctttcttg tagttttgta gtagtgttta 120
aatcatttgt taataatgga aattgtgggt gatttcgagt ataacagcaa ggatttaata 180
ggacatggag ccttcgctgt ggtctttaaa ggaaggcata gaaagaagac gcatcttggt 240
gtggcaatta aaagcataac aaaaaagtct ttggccaaat ctcaaaattt gttaggaaag 300
gaaatcaaga ttctcaagga acttactgaa ttgcaccacg aaaacgtagt cgccctcctg 360
gactgcaaag aatctgctca caatgtatat ctcgtaatgg agtactgcaa tgggggtgat 420
ctagctgact atctcagtcg taaagccctt aagcgaagat caattagact tttcttgcca 480
ttagcggcgc atgcganttn atgccaaagc tcgactcgga ctgaaccgag attctctgcc 540
atccgcagc 549

```

<210> 309
 <211> 308
 <212> DNA
 <213> Ctenocephalides felis

<400> 309
 ttataaataa agaacaagaa ctgaaagaaa aatacaaaaga tgatcaaccg attgaatgtc 60
 catactgggg cgggtatata gtaatacctc gatctattga gttctggcaa ggccaaagtg 120
 atcgcttaca tgatagaata aaattccgaa agttgcttcc aaatgaacaa atagatttga 180
 atttaacaca tgaagcagat aatggatggg ttacgaaaag attatcacct taaacttaaa 240
 attatttata tttttatgca ggaaagccaa aataaaaata gttcaataat ttgaacttat 300
 aattatgt 308

<210> 310
 <211> 437
 <212> DNA
 <213> Ctenocephalides felis

<400> 310
 cacgattcaa tatcgacgat ttcaaaatth gctgcgttga ctttataaat tttataattc 60
 ggatttcggg taacgtaagt tgtaatactt cctccattga atgcaacatt aataggatgt 120
 gatgaattca tagaatcata gaaaatctta aattcgatcat tatgtgtgtg gccattgaat 180
 tgtcctgtta ttatatgcca aaatctttgg atgatgcgcc tatattctct gtccaagta 240
 atgaagttag tgggttcacc aggaggaaca tgtcccaaaa tgtgcacttt ttcattagtt 300
 ctttctgctt ctaacagagt atcatgtaac cattgcaatt gctttttggg gaatgcagga 360
 tcatacagta accacaaatt ataaatatag gccacattat tattcaacgc tatgactcgt 420
 agtccaagtt taggtgt 437

<210> 311
 <211> 173
 <212> DNA
 <213> Ctenocephalides felis

<400> 311
 cgaaacccga gcaaaaatgt aaaaaagtaa aatttagttg cgtgaattcg tgcagttcac 60
 ccgaaatgca gtattgtccg gaaataggag cagatccggg taaggaaatcc tgtagccag 120
 atcaagtgtg cgctgatcaa agtgatatac tacagtgcac cactaaagaa agt 173

<210> 312
 <211> 337
 <212> DNA
 <213> Ctenocephalides felis

<400> 312
 cgtcaagtcc aatccaaaag tggaagcttt ttcaggaaag ttactaagag aggtgtcatt 60

tccaccagtg ggatcgagaa ataatcgcac aattagctgt gttcgtgcc tggaccaata 120
 tgtaaatggc caaggaggct atgccactct tgtcaatggg ggagtgggct ggaaaaatgt 180
 aactttactc ctatcttctc agactggcaa aggatttaac ttcttagttg aaatttgagg 240
 atattagatt agaaatataa tgaaaatgtg aatatagaaa aaaaattaaa tatacaatag 300
 tattttagaa aaaaaaaaaa aaaaaaaaaa aaaaaaa 337

<210> 313

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 313

attgaagacc gtacacaggc ctgttcaatc tggaagctaa gggttctaag ggtgctacaa 60
 ctcttcaat cgcataaact aagaacaaag gtttcttacc actcttgta tcctttgatg 120
 tcaacctcaa caatactttt tctggcatga gttcgttact ggcaaagctg acttggttgt 180
 cttcgtcgtg gactgcacca ttggctcgtg cagaagtacc gccaccacct gcacctaat 240
 ctttcagttt accaaagggtg agtgatctga tttcttgggc attcagtact aagtcgtaat 300
 ttctttctaa agtttgttta atttcagctc ccatcagcga gtccatacca agatcagaga 360
 gggtagcaga ggctgtgtga tttttgtgac ccttaagacc taatatattt gcaactgcat 420
 caactaaact aacacctcct gcaccagcac cagcgtctgc tttcctctta tcagctaata 480
 ccatggaggc caagacan 498

<210> 314

<211> 457

<212> DNA

<213> Ctenocephalides felis

<400> 314

tgnggttggc attatcanca accccaaaga caagcangtt gaaatgtctg tttcaaaaat 60
 aaactgcaca nngattttta gctgacctta taacacctgt aanaagattt acaanancct 120
 cnaaactcca tgccaacaaa aatggaatta cttgtgtctac gaatacangg ggaatttgtt 180
 atntgcattg gaaaatgagg aaaattttga ttccaaattt cngattgata catggaatag 240
 gcaanatggt aaatgggggtg gaattacttg tgttttacag gatggagatg tgtttgaaaa 300
 agcgggagtg aatatcacag taatgactgg tgaactanaa ccccgaggca ttcaacaaat 360
 gaaaagtcgt ggaaaacant tcatccantg aaggtggacc actanaattc nttgcggcan 420
 gtgttagtgc antaantcat cccaaaaatc ctcatgt 457

<210> 315

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 315

tggcgaaact atgggtcact ctgctgatag attggctgct gctttcaaag catctcgaga 60
 agaacaagat gcatatgctt tgaaatctca tacatatgct aaaaatgcac aggagaaagg 120

```

atatttcaca gacattgttc catttcaagt tccagggtgtg tcaaagatgg tagaaactga 180
caatgggtatt cgtgtcacat cattagaaaag tctggccaaa ttgaaacctg cctttgtgaa 240
accccatggc acaattacag ctgctaattgc atcattcttg actgatgggtg cttcagcttg 300
cctcattatg actgaagcca aagccaagga attaggtttg acacaaaaag cttatctaag 360
agaatttttg tatgttgccc aagaccaggt cgaccagttg ctgcttgggt cctgcttatg 420
ttacacaaaa gatcttagaa cgtatggtct gagttaaaag acatagatgt ctgggaaatg 480
catgaagctt ttgctggt 498

```

<210> 316

<211> 465

<212> DNA

<213> *Ctenocephalides felis*

<400> 316

```

cactcgtggt cttttcccat cttcattttg actgcccaac ataagtataa tgtctttatc 60
ccctagattg ctgcttgaaa caacaactgt atgcacatga cggctatgaa accattctgt 120
gcatttccat gcacgtcaa tgttatgaat ttgcaacca gtgagcaact ccacctcaaa 180
ttgatttgga gtaacaatat cagccaatgg aataattagt tctctataaa ttggtaataa 240
tgattctgga acatacattt ttccattatc acctaacact ggatcgcaaa cgtatgtcaa 300
ttttggattt ttttctctca attccttaac gacgttcgca attgttttaa gaaaatctgg 360
attagctaca taaccggtta ataagtgact gtagacattg ataccattca atgctaacc 420
ttctgccagc tctcctaatt cctgtccgt tagaacttgc ctcgt 465

```

<210> 317

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 317

```

ttttttttt ttttttttt ttttttttt tcttgaatnc ataataaaat ttattattag 60
ntnattataa aaaaaaact taaaaaata attatatgct taaatngttt catgtagnca 120
tatatttatt acatganctt tttaactaaa tctataangg gttgaatcaa ttcctccgtt 180
gnagttncat tgttattaac aagancaaaa tcccagtttt cataattatn taaatcacat 240
tcanangcaa catcatcaac accttcngta aatttccaac ctcganattn tcgaatgcat 300
ttactgcaat taattctaact ngttataact ttagcaccat atttttcaat aaaccatttt 360
atatctgngt tcctgcggat atcactaact atgcaaata gttttgaaat tgcttggcaa 420
gccctttaca aaaataacca taatcttcat ttcaaactcg gtcgctccat tctatcat 480
tttctgagct ttctttanat 500

```

<210> 318

<211> 585

<212> DNA

<213> *Ctenocephalides felis*

<400> 318

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nctgacaatt tatcttaata gaatagcaca agcaacattc gacaactttt caatggctgg 60
ggtctatttc gtgcatcgaa gtcgttaaag gaaaattcgc ctactgccaa acatgaagaa 120
ctcatggcaa aagcatgggtg ttttgaggct tcagaacgcc tagaggcaaa tttaaaacat 180
gtagtaagcg gtaagcattt agatttatat accaaattag ctacaatagg caaaaattca 240
tgcgctgcc aatggagttcc gcaaaataat ccattaaatt tgtaataaat attaatgtatg 300
tgtaactaag ctttaagttca ttttaatttat tttattgata aatactttta ttttaacagaa 360
tgtaaatatt tcatttttatg taaataatta gggggnattt gttatcaaga tcgtgcgcc 420
aataagcctt gtcatacaga ttattttcaa ttttgataat aagtaataca atgcgcattg 480
gtacattttg naatctgaaa tattgncaat ggctgatat atttaaataa aaaatgaaaa 540
aaattaaaaa ttaaannnnn nnnnnnnnnn nnnnnnnngg cttgg 585

```

<210> 319

<211> 363

<212> DNA

<213> Ctenocephalides felis

<400> 319

```

cctcctagtt cacctgtttt ataatcatnt ggaaaaacat gatgataatt gtgccaacct 60
tcaccaaggg ctgcaattgc aaccctaag tttccactg gacttatait tttgtcataa 120
ggtttctggc ccacatatg tgcaacactg ttcacaaaa atgcaatait tagggcaca 180
cagaacctaa aattaaaatt gacccaaaa gaaaccata ggtcttcttg caaaaatac 240
caaggcgcca aaaccggtaa acctatggcc aatagggcaa atagagggat gtaaacctt 300
ttttgccaca tgactactgc atcggcttcc aagtcactca tatcaacctg tttcctttta 360
agt 363

```

<210> 320

<211> 223

<212> DNA

<213> Ctenocephalides felis

<400> 320

```

ttcatcagaa gtgtttccac agtctggcca anttaagcta tacccttggc agctagttgt 60
gacgattctc cttaaattagg atggactaaa tgagccatgt tcggtgctcc accaatgcct 120
atgctacgga atgcacgttt tgaaacttca tcgaaaatca taccctaat tgctgcagg 180
tttttaaatg ctttttgtaa ttctttcaaa tgtgcaccag cgt 223

```

<210> 321

<211> 337

<212> DNA

<213> Ctenocephalides felis

<400> 321

```

ttttataagc agaaccacca ggtgaaagat aaacgttcca ggatcctgca ttattgaaaa 60
ctttcagaaa attaccagat aatttatatt gtatacaaaa cgtgtctgta tatgcagcag 120
cctggatgga agatggtaac ttttgatta gtttggaac tttttcttt tcatctggtt 180

```

```

gaaaattgga tcgttcatac acttttttga cgcgttgac aaaagtga aaatcatcgt 240
aattattggt ttgcaataaa tcattcacta caaataaccc atgaatgctc agtggttaagt 300
tactgttgta actaacaaaa tctatgagag aaagtgt 337

```

<210> 322

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 322

```

gaaccaacaa attccatcta caaccaaat taatattaaa atttgaaatc atttttaaaa 60
aatgatcgtc agaagtgttt tgggcctttg tgccttggtt gggctcctgg tgtctgcaa 120
agcagattta acagatgacg tcatggctag gatgcctgat gacttcagga gggagtattt 180
gtaccagaaa aagttgacag tgggtggatct gattgagcaa aatggttacc cctgtgaaac 240
ccaccaggtg acaacagaag atggctacat cctgaccgtc tacagaattc ctcacaacag 300
aaacaacgac accattacca ggggagcagt cttcgtaatg cacggactcc tgtccagtgc 360
tgctgactgg gtcgtcctcg ggccacatca aggactacca tatttgcttt ccgaccaagg 420
ctacgatgtt tggctaggaa atgcaagagg caacacactg tcaggaatca cacacattga 480
gtgtgaagag tgggtgaatct ggaattagtg gaacgagatt gttatacgat ttgctgcatg 540
atcgatacg 549

```

<210> 323

<211> 369

<212> DNA

<213> *Ctenocephalides felis*

<400> 323

```

ggatgtgatg tgtctaaagg ggaaactttg tctgaatata ttggtagtgg accaccacag 60
ggcacaggat tacatagata cgtttttctg ctctacaagc aaccggataa aataaaattt 120
gatgaattga gactgactaa cagaagtggc gataatcgtg ggcagttcag tattgcaaaa 180
tttgccatga aatataattt aggtcaacct attgctggaa atttatacca agctcaatgg 240
gatgattatg ttccagaact ctataaacag ttgggagctt agctggctaa aatatagttc 300
aataataata tgaacaatgt ttgaatttta ataaaactat tatttgttga taaaaaaaaa 360
aaaaaaaaa 369

```

<210> 324

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 324

```

gcatattatt tatttttata tatgtatata cagctagata agttaaacat gcactcattg 60
agtttcatca tcttttagta gtggcatttc gtcttcttcc ccttcttgac gaattttgat 120
gtgggcatat ttgtcagttt gtgattgcgg tgcttgtgta gaaccaacac tttttggtgg 180
atatggtatt ctgaacaatt gaattcggag atgatcacat atttctaagc agacttgtgc 240

```

```

acagtatctc atcagatcga agatggacaa agccaaacaa aggcagagaa cataatattc 300
atttacaaag ttgttgaaat actgatttag gaataataaa gatggtccta atagagccca 360
gtctaaatat tccatttcac tttttgtcat atgcgcgacc actaatctgt ttgtgacctt 420
tgcagctcca ttccaaaggc gagaatatac aaagcgggat gattctcaaa tatattgctg 480
gactcttctg gcaaataatg aatgcaggaa tacaaccaa ctgaatggat tatttgtaca 540
aacctgtcc 549

```

<210> 325

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 325

```

gacaaatccg agaacttcga tgattacatg aaagccttag gtgtcagtct agtcacccgt 60
aaattgggca accaagttag cccagtggta gagctgacta agaatggaga tacctatacc 120
ttgtcatcca ctgacacctt caaaaattcc atcatcacat tcaaacttgg tgaagaattt 180
gatgaagaga ctctgatgg ccgaaaggta aaatcggtag tcaccttggg tggtgataaa 240
ctgactcatg aacaaaaggg agataagccc accaaaatag tccgtgagtt tggaccaact 300
gaaatgaaag cagttatgac tgttgatgat gtggtctgca cgagaactta caaagcattg 360
taatttcaac actacggttt tctatttttg ccttaagtta tatgcatact cgtatggaat 420
ctgttataat acagactaat tgactaatta tggcattgta ggatgctgct tgttcatctg 480
ntaaagtact gtttaacttt tttgttttat cgaangatga aattaanctt aaaaaaaaaa 540
aaaaaaact 549

```

<210> 326

<211> 298

<212> DNA

<213> *Ctenocephalides felis*

<400> 326

```

aagctaccac catcgcaaaa tgcgataatg gagctccttt gcccaaccagt gttgacgtcg 60
aaggatgtga caaattacct tgtccattag ttcgtggtag cacttctttg actgatgtta 120
aatttactgt ccctgccgat tctgctactc tgaaaccaga ggtaaaagcc aaagttgccg 180
gtgtcaccgt tccttaccga ttaccccag agctaagtga tgcttgccaa tttcttaagg 240
aaggatcatg ccctttgaaa aaagacgata aagtcacata caatctaaaa gttccagt 298

```

<210> 327

<211> 598

<212> DNA

<213> *Ctenocephalides felis*

<400> 327

```

gaaatcaata agacattatg aaactaataa acagtatgaa agtaataaac aatatgaagc 60
tagtaaacia tacgaaggcc ataaacaatt tgaacctagt cgaccttttg aagctaataa 120
acaattcgaa gctagtaaac aatttgaagc taacaacaa ttcgaagcta ataaacaatt 180

```

cgaagctaataa aaacaattcga aagctaataa acaattcgaa gctaataaac aattcgaagc 240
 taataaaciaa tttgaagcta gtaaaacaata tgaagctaata aagcaatatg gagctaaciaa 300
 acaatatgaa gctaataaac aatatgaaag taataaacca tatgaaacca ataaacaata 360
 ccattcaatg agcgaacgta atcatgaatt tagcaaatca ggaggatatg gaggctcgaa 420
 tttgatcaa aatcaggcan atgcaanaaa ctttganaga aacggaaaat ttgaaagcag 480
 cggaagctat caatatcaca ntgaacaaat ggcgagaaat ctactgattc aaataagcct 540
 tactcctaaa catatcgatg agctaataga aacgttatct gatagttcaa tgtactcg 598

<210> 328

<211> 221

<212> DNA

<213> *Ctenocephalides felis*

<400> 328

gaacaatata gataccaaaa tcattttgaa cgagatggaa cttgcgcaag agctcacatg 60
 gaatcttttag ttgatggtaa aataaaattc agacatgtca tggaagaaaaa tggaaaaaaa 120
 gttgaattta gtggacaact cagacgtaat gatgaacatt ccggtaatgg atatctgaga 180
 atcagttatg aagatacaaa tcgagaatca gattatatag t 221

<210> 329

<211> 489

<212> DNA

<213> *Ctenocephalides felis*

<400> 329

ttgatagaca gatcagtcgc atcaattgaa tcttgagcta ttttgctcaa ttgactatct 60
 tgctcaattg gaactgactg aatagacgga attccttcaa tactttgact tccaattcca 120
 tctccaagaa ttttctctaa tttttgggtg aataagggaac ttctaattga cgctgagtca 180
 gaatttttat ctctgagctt tacagaacta gatcctgtat tagttttatc agtttcgggt 240
 ttataacaat catcacattg agaattcacc agtcctgcag gatcaactat ttgaatattg 300
 tcattacagt gagctttatc atcgttgtct ttgaattcct catttttgat atcgatttca 360
 tttttagttt cgggaaaaatc tttcagcgct ccgtcacgta gtaagctaga ttcagtggaa 420
 gatattgaac tacttctaata tgatttaaatg gatgagttat tgctttttga agagcttttt 480
 cgaagttca 489

<210> 330

<211> 352

<212> DNA

<213> *Ctenocephalides felis*

<400> 330

cagtttgctc aattactcgg aatggccaat gcttcgaatc ttgctgcact gcaggttctt 60
 cccattttct accaattaat cgtttagcat caaatacagt attttttgga ttcatagcgg 120
 cctggccctt agctgcgtct ccaaccaaac gttctgattc agtaaaagca acatagcttg 180
 gcgtggtgctg atttcctga tcatttgcaa taatctccac ttttcctgc tgccatactc 240

cgacacagga gtatgtagtt cccaaatcta ttccaatagc tggcattttt ttctatgtta 300
gactgtttga ttgttaatca aaattaaatc caattgaact cgaactttgc gt 352

<210> 331

<211> 265

<212> DNA

<213> *Ctenocephalides felis*

<400> 331

tttttttttt tttttttttt tttttttttt ttctgcatca gataatacct cataagcngg 60
tcctagatct tgaaacttcg aggctgcac tgatcggtt ttattcttat caggatgcaa 120
ttcctttgct tgtttcctat aagctttctt aatttcattt aacgtcgac tacgagatac 180
ttttaatatt gaatagaaat ctctccagc gctggctagt aaaaaataaa tacttaagtt 240
aactaacact aaataacaca gtttg 265

<210> 332

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 332

acatagtgat cttcatcata ataaccgatg tcaccagttt tgaaccaacc agtttctgga 60
tccaaaactt cagaagttgc ttcaggacga ccataatacc ctaacattgt agggccacgt 120
agatacatct caccttgccg atttgccct aaagtttctc ctgtagaagt atccacaatc 180
ttaagttcag tgttcattaa aacgtgtcca acagttcctg gtctatatc tgcgcaagtt 240
atagttgtag ttccacccat acattcggtc aaaccataag aaaccaccaa ttaccattt 300
gtcaaatggt tttgcatagt ctgcacctgt tgtggtgaca atttggaaac aacagcaaac 360
agcaacatta catctccaaa tggttctgca agttcttctt tatcttgtaa atacaaatc 420
atcagagaca attggtgaaga tgatagtagc atcaggcctg cttgtattcg cgcataatc 480
tcaataagtt tcttcggt 498

<210> 333

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 333

tccgaagcct tngccgttan tntttactca tcaactccaga gaaggcaata aaattggcag 60
caaacgactn ttccagacac catttgaagg acaaaaatgg taatttacca ataacaaatc 120
aaatggtggc tggagggggt agctggatta tgtcaaatag taataactac gccaatggaa 180
ttgttgaaaa tacaatgctg ggatgcagga cggatagctg ctcaaaataa aaaagctgga 240
atagccactc ctaagatacc agctactgaa ttaacttttg gacttattag agacaaaggt 300
attttgggtc tatataaagg aactgggtgc actatgctgc gagatgttct attttctgnt 360
gtttactttc ctttggtcgc tactcttaat gcaactgggtc caagaaaaag tgcggattct 420
aatgaancaa gtttttgng ctcctnttat ctgctgcgct gttggatcaa tggcggcatt 480

agttgtcaat ccatttgacg

500

<210> 334

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 334

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ctcctgcacg ctttcaaatt tcacactgat ctattaatac agncttgaat cacatacaga 60
ctcctcatat gtataatcac atataatgnt tcataagcct taattgaaat ggaatttaaa 120
ttgaaatggg gatccatgat ggaagtgatg gaacggtgaa ccaccgcccc ctctgtgatt 180
atgtgcagat tctggatcta aaggatcttc accgttgtca aactgagctc ttttctcagg 240
atcagtaaga acctcttttag cagcagcaat atctataaat ttattctctg ctattttctt 300
ttcatcatct ttgaaattat caggatgccca tttttgtgct gcttttcgat aagctttaat 360
gatctcttgc tttgtagctg ntctttttac acctagaaat ttataataan ctcttctctc 420
acttgntttg taaccctgag ccttcaaaag cccatctttc gctctctgac atgctcattt 480
atttccaaag ctgatttata 500

```

<210> 335

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 335

```

naagacgttt tgaacacctnc ntttaaacca tttgggttgg gggctggggg aanttttaag 60
gaaacccttn caaaaatggg cacctcaact ggtgcaaaac gtttttggct tttnttgggn 120
ccgtgggtctt tagacaaacg tgccagaggg cttttcacga aaaccaaggg gagggcattg 180
tcattcctga gaagggcgca agcaaaaagt tctcaagggc agagttattg cagttggccc 240
ggcaaagaaa ccaactggtg aacatgtgcc cctaggaatc aaaagtgggtg acatggtttg 300
ctgccgaatc cgaggcccaa aagttgagct cgaagagaac aagaattcct tattcaaaga 360
atccgatatn cttgccaaagt tggatatcga cgaataaatt gccnaaaatt taccatcttt 420
cacaatttnc ccaacacaaa ctgnattcga agctgttgct tnttatnaaa gtagcaatgg 480
tttttnnttg ngggtctctt 500

```

<210> 336

<211> 482

<212> DNA

<213> Ctenocephalides felis

<400> 336

```

ttatataata caatttatta taaaattaac gntctaating tatcccggtg aattaattat 60
tttaataacg attttttact tttttataat atatatgtat tatattccct attatataat 120
acaatttatt ataaaattaa ctatctaata tatcccggtg aattaattat tttaataacg 180
atttttttta ctttttataa tatatatgta ttatattccc tattatataa tacaatttat 240
tataaaatta actatctaata atatcccggtg taattaatta tttaataac gattttttac 300

```

```

ttttttataa tatatatgta ttatatgca aaaatgtaaa aaagtaaaat ttagttgcgt 360
gaattcgtgc agttcacccg aaatgcanta ttgccggaag taggagcaga tcccggtaaa 420
gaatnctgta gcccagacaa gtggcgctgt caaagtggat atctcagtc ccactaagaa 480
ag                                                                 482

```

<210> 337

<211> 418

<212> DNA

<213> *Ctenocephalides felis*

<400> 337

```

ttgacaagca aaataaaata catcaacggt gttttttacg gccacttgca agttatttaa 60
tggttccatt ttttgaacaa ctccatttgt tccaagaacc aatgatgttt catatgtttg 120
tgatggttgt aaattcggaa cttgtaatgg tgcaccaggt gccagaccaa agctgttttt 180
attcaactgt atggcaaaac cactcatagc ttgcattgct ttgttggtgt agtcatgtc 240
catgtaaatc tgtccacttc tcttgagaa tgttccatat atttccaaac ctttgcctt 300
ttcagctggc aaccacaatg cttttggtat aacaaaaggg ccagctgatc ccacagagaa 360
tatttctccc agaagtccag agttaccgat gttattaagt anaattgaca tctgatgt 418

```

<210> 338

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 338

```

gtcntattcc attattccat gcacacaata ttcaggcgaa tgagcctgct ttaagcactc 60
taatttgttc aaagtaaagc taccggccca cctcgacact cggtagagag caccgtggta 120
ggattttgag ttgggcccgc ttttgacagg ctaagccac cggtaggagc tcccacagac 180
atgccagttg aacaccgcga gcggtgaacc gacagtgtgg gacacagatt caactacgag 240
ctttttaacc gcaacaactt taatatacgc tattagagct ggaattaccg cggctgctgg 300
caccagactg gccctctaag agatcctcgt taaaggattt aaagtgtact cattccgatt 360
acggggcctc ggatgagtc cgtatcgta ttttcgtca ctacctccc gtgccgggag 420
tggttaattt gcgcgcctgc tgcttccttg gatgtggtag ccgttctcag gctccctctc 480
cggaatcgaa ccctgattcc ccgtcccgt acaaccatgg agtcgcagaa ctacctcgac 540
agtgataag                                                                 549

```

<210> 339

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 339

```

aatctctgaa actaattacg agtgcagtag caattctttt ttactaaaa gaaaaataac 60
tttgaacaa aatggcaagc acaagacccc acagggagaa catgacagac gaacagattg 120
cagaattccg tgaagctttt gctttgtacg acaagacgg agatggtgag atatcagccc 180

```

```

ccgaattagg aactgtcatg agggcttttg gtcaaactcc ttccgaagcc gaacttaaag 240
gatacgtcaa ggataatagc gtggccatga ccgtagattt tccaacattt ttgacaatga 300
tggtcgtca gatgcaggaa ggcagcagtg ttgatgaaat ccgggaagcc ttccgggttt 360
ttgataaaga tggtaatggc cgaatgtctg ttgcggaatt gagacacatt ttaacatctc 420
ttggagaacg cttaacagat aatgaggttg cgcaatgatc cgagaagcag acgtagataa 480
tgatgggatg tagattatga gcaatttatt caagcatgcg atgagttcat aatataaaaa 540
taataataa 549

```

<210> 340

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 340

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gacnntataa caaaccgaga ttatTTTTga aatnaaaggt attaggaaaa attattgata 60
ataacataaa agtctaatag cttttataat atgacagcaa tgcgtactgc aatgaatggt 120
gtgtatacag ttttTtggt tctattaatt tcacaaggta cccaaagcgt tgaattaaact 180
tttgaactac cggataatgc aaaagaatgc ttttTccaag atattcaaaa aaatacaagc 240
gtcaccttag agtttcaggt cgtcacgggc ggtcagtatg atgttgatgt aacattagaa 300
agcccaaata agcaaattat atatagtcaa gtgaaaaccc aatttgattc gcatcatttc 360
actgcaccga taagtgggtg ttacgttget tgtttcagta atgaattttc cacgttctca 420
cacaaattgg ttatatggac tttcaagttg gtgatgaaca gctttaccg gtgtcgggga 480
gcatgctaca gtcttaccga acttgaatct ttgccaagag attcatcgaa gtttgccagt 540
ttctcaatt 549

```

<210> 341

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 341

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ataccaaata aagtttgttt gtgagaaaaa gtatttgcatt aatttgatt atttccacta 60
tatcagatta ctcatTTgaa ccatgtctct cgtaccattg ttgtttcacg actggtggga 120
ggattacgac cacccaatgc gtcttatgga ccaacatttt ggaatgggcc taaatcgtaa 180
tgatcttatt actaatctaa gggccactcc atcactcttc cgtggcggtt attacagacc 240
ttggaggaat gaaattactg ctgacgatTC ttcatcaact atcgttgctg acaaagataa 300
attccaagtg acttttagacg ttcaacaatt caaaccaaaa gaaatcaccg taaaaacaaa 360
ggacaattgc gtaatcgtcg aaggcaaaca cgaagaaaaa caagatgaac acggatacat 420
ttcccgtcat tttgttcgac gatatgtctt gccagaaatc acgatgctgc cgatgtagta 480
tcgagtttgc ctccgatgga gtattgccat acagcgccaa gaaggccttc agtgagcaga 540
cgagtggcc 549

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<210> 342

<211> 383

<212> DNA

<213> Ctenocephalides felis

<400> 342

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agcnttaaatt aacaatttca aattcaatat gaggaattta gtggttttcg ggtagtggt 60
ggtagtttta tttgttggtt caatggcaga agacacacca gatgaaaatg agaaattcga 120
agtgggaatg tcagagggtt ctttgaatga ttagagacca gcaccacgtg tagtatgcca 180
acttgaggga aacagattat gcaatgctcg gtgcatactt ctaggaaaaa gaggaggctc 240
gtgcaaaaaa ggaacttggt actgcagaaa ttgaagaaat ttaatatagc ataatatatt 300
agataaactt tgaataaaaac cgtgttaaaa attttgcgca aaatatataa tataacctaca 360
aattaaaaaa aaaaaaaaaa aaa 383

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<210> 343

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 343

```

aacagctgtt tgtgccgtac ggtggtcccc gcgtgtgtag cattgtagca gtatcaaagc 60
gaagctcgat cgatccggtc gagacgtgaa gcccgcgcca taccgccgct tcagagacaa 120
tttacagact ccggaggtta tatcacgaaa ccactttgtg ttcgacttct cagtacgaca 180
gtgtcgggtc tttcaaacgc gcgttggtgtg tgtccatcta tcatttaca cgggggttct 240
gatttttcga aggttcagta ataattttcg tatttcgtta tggcgatgag atgtgtagga 300
ttgctcgtca agagcaccat ggtccagtcg ggacagcgca ggctgatata ccaatcagct 360
gttgctatga acaggatgct tcaggattca ccaaacgctc acctagataa atcaatcttg 420
caaaggatca ctgctcttct caagacgata ggacacgcag gtcacttacg tgtggatcga 480
tggacgggtg gtacttgccg ctaaggacgt gtcttgaatt aacctccaaa ccagaaactg 540
caaatggac 549

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<210> 344

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 344

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tatcaactta aataccagca tcaaatggt gtcagctggc atgacgtgcg tgaagtattt 60
attgttctgc ttcaatttaa tatttgcctt ttcaggacta accattctta ttgttgagc 120
cctaattcaa tcatcttttc accactattc tgaatttgta aatgctagtg tctggtcagc 180
tcctgtcttg cttattgtaa ttggcgcaat tgcgtttgtt atcgacttct tcggatgctg 240
tggtgctgtg aaggagagca attgcatgat ctataccttt gcagtatttc tcattggtat 300
atztatattg gaattatctg ctggaatagc tggctatata aagcatggtg aacttgctga 360
aaccttgga aataatttta ataccagtat gaattcctat attgatgata agcaaacacg 420
tgcaacatgg gacgttatcc aggaagatct cgattgctgt ggtatgaatg gccaaagtgc 480
tggaaaaaag tttttaataa tgaccaatcc caaatcctg tgtgatgagc tccaaagtga 540
tttgaatgc 549

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<210> 345
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 345
 ggcttattga cgtagtata acctcgtttc taattcatac tgaatttctc aatttatcag 60
 tataattaaa gatattgttc atctgctttc caggtgtacg tcttcagatc tgtaagtaaa 120
 aatattttac aagccgtccg agttcattgt gttcattcga gctgtgtag cattgcactt 180
 caattcctca agtttcatac ataattcaaa atggctcgta ctaagcaaac tgctcgtaag 240
 tcaaccggag gaaaagctcc acgaaaacaa ttagccacaa aggctgcgcg taaaagtgtc 300
 ccatccactg gaggcgtcaa gaaaccccat cgttatcgtc caggtactgt cgcccttcgt 360
 gaaatccgtc gttatcagaa atctactgaa ttgtgatccg taaattacct ttccaacggt 420
 ggtgagagaa attnccagga tttcaagaca gatttgcggt ttcaatcact gctattgcgc 480
 tctgcaggaa gcagtgaagc ttcctctagn ttgttgaaga caccatttgg tgccttcagt 540
 ctagaggtg 549

<210> 346
 <211> 550
 <212> DNA
 <213> Ctenocephalides felis

<400> 346
 gacatcatta ctggtgatga gatgttctca gacacatata aaataaagt ggtcgatgaa 60
 gttttgtacg aagtgaccgg caaattgggt tcaagggtctc aaggggatat ccaaattgaa 120
 ggtttcaacc catctgctga agaggctgat gaaggaactg aaacagccac ggaatctggt 180
 gttgatgtgg tcttaaatca ccgcctttgt gaaacttttg ccttctcaga taaaaaatca 240
 tacactcttt atttaaaaga ttatatgaaa aaattgggtg cgaaattaga ggagaaatca 300
 ccagaacaag ttgaggtatt caaaacaaac atgaacaaag tcatgaaaga aatattaagc 360
 cgttttaaaag aaatgcaaat gttcactggg gaatcaatgg attgtgatgg catggttgct 420
 cttatggaat atcgtgaaat agatggtgaa tctgtccaat tctgatgttc tttaaacatg 480
 gctagaagaa gagaaatttg aacaatacac tattttattat gtgaaactca tcttaatata 540
 ctgattttgn 550

<210> 347
 <211> 550
 <212> DNA
 <213> Ctenocephalides felis

<400> 347
 agaaaaatcaa cttgtgtcac ggcaactggg acagtatcac ctatgaaaaa tgaatttgga 60
 aaagttgttt gtggtgatcc tgtgtctgtg cttggttgaa agttcaattt gtgccactgt 120
 catctcaaaa gatgatcagg atttatatga gctatctatc atacatctga atgattttca 180
 cgccagattt gaagagataa cacctcaatc aacagcttgt aataataaag aagaatgtat 240
 cgggtggaata gcgcgtgtct ataccgaagt aaagcgtctg caaaatgaaa ggacaaatcc 300
 aattttcttg aacgcaggcg acaattttca gggcactctt tggtaacaac tacatcgatg 360

```

gaatgtcacg cagtactttt taaataaatt taagactgat gctgtgacat tgggtaatca 420
tgaatttgac cataagattg aaggtgtggt tccattcatg gggtccatcg aagcacctat 480
cgtagtgtgc aacattgatg actcgcaaga ccacatttca gggcaaatca aaaagacatt 540
gttttagacgc                                     550

```

<210> 348

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 348

```

ggaacgtgca aagaaagatc cccaatttta tatgctttgg tctgctgatg atcagcctga 60
acatatgcgt agaattcata aacacattgc ggcgccgaaa agacacttgc cagggtcatgc 120
tgaaagttac aaccacctc cagaatatct atttgacaag aaagaattga agcaatggaa 180
taaacaaaag gacacaccat ggaagcgtaa actacatttt gtacctgaaa aatataattc 240
actacgcgaa gtaccatcat attcaagata cattaaggaa cgtttcttac gttgtcttga 300
cctttactta tgtcccagag ctataaaaaat gagattgact attgaaccgg aagctttggt 360
accacaacta ccaagtccta aagatttgca gccattccct actgtcaaag tctcgtctat 420
aaggggacata aagacatgat aaggtgcatg acaatagatt gcttggacaa tatctggcta 480
cagggtctga tgacatgcag taaaagttgg gaagtttgca ccgccgtgtt gccacaatat 540
atgtccggga                                     550

```

<210> 349

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 349

```

ggaacattta ttcgtgaagc tagcactagt catgcattgt ttggtaaaca tattctcact 60
gtagacatgt tcaacaaaga acaattaaat gatattttca atttggtgta aaatatcaaa 120
gctcgcggtg tcaaagatcg accagtagat gaaattttgc gcggttaagg aatggcttct 180
atcttttatg aagtgagtac tctgaccagc tgcagctttg ctgctgcaat gcagaggctc 240
ggaggccgag tgatccatat agatgaaact agctcatctg ctaagaaagg cgaaactcta 300
gaagattctg tttctgtcat ggctgggttac tggatgtaa ttgtacttcg ccatccagaa 360
ccaggagcag tagctaaaag ggctgcgcac ttagaaaagc cattaataaa tgctggcgat 420
ggagttggcg aacatccaac tcagcgtgct tgatatattt actattcgtg aagaaatggt 480
ccgttatggt tgactatact atggncggac ttgaaaatgc gtctgacctc attgntcgtt 540
ggtgcgtat                                     549

```

<210> 350

<211> 536

<212> DNA

<213> *Ctenocephalides felis*

<400> 350

```

cgattccgaa gtgcaagagg catacgaata tctgaaatcg gatgaatttg ccaaagcctg 60
gaagtatgct gtcgaacatc cggatatattt ggaaattctg gattatttac aggaaagcgg 120
cctggacatt gtagagcttt tgaacaaaat tgctgactat ttaggtctcc agaccttgga 180
accaagatcc atcaattaca acgatgaaat tccaatttcc acaggtgggc tcaaggaatt 240
ggtgaataaa attaaggaca tgttaccttt aaccgatttt atgatcttat tcttcgacaa 300
aatggacaat agcgatgact tccagaatct aatgaccgcg attcaatcta ctgattttca 360
aaaaattatc gattttgtag aaaactctcc agaaattttg gctctaattg ataaattgga 420
aaatttaggc tttgatgttg acacaataat cgatttcacg aaaagcttct tcggtggcct 480
aataaaccgg atgtgatgaa ataaatatag aatattcgta aaaaaaaaaa aaaaaa 536

```

<210> 351

<211> 284

<212> DNA

<213> *Ctenocephalides felis*

<400> 351

```

cctnctcct catttaaaca atgcttgtga tcatttgaac gatggcgccc aatgcccctt 60
gaagaaaggt gaccaagtta ctacaatct taaagtcca gtactgcaat ctacccttc 120
aataaacttg gacttgatgg tgtcacttgt ggatgacagt aatgagtcag tagtatgttt 180
caagatcccg tgcaaggttg tataagtagc caaaataatt tttgatttgt tattgatgga 240
acaaaattaa aataataaaa ttgaaaaaaa aaaaaaaaaa aaaa 284

```

<210> 352

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 352

```

cttaagtgtt cagaatgcc aatcaatgc atgtaaatgg ctatgccaac ggccacagcg 60
gttccttcga tatggaggat ggatctgttt tcttgtttac ttcggaatct gttggcgaag 120
gacatccaga taaaatgtgt gatcagatca gtgatgctgt attagatgct cacttgaagc 180
aagatccaaa tgctaaagt gcttggtgaa ctgttactaa aactggaaat gttctcctct 240
gtggagaaat aacttccaat gctgtagttg attatcaaaa agtgggtcgt gacacggtga 300
aacacattgg ttatgatgat tcactctaaag gggttgactg gcgtaccctt aatcttctgg 360
ttgcattgga acagcagagt ccagacattg cgggtggtgt acacatgaat aggcaagaac 420
atgacatagg tgctggggat caggtttcga ctataggacc tgcaatgtct acttgatttg 480
atctcagcac ctatatagca gctggagtca tgacatcgaa ggatgaaaaa tgggcangaa 540
acagggtta 549

```

<210> 353

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 353


```

ttttacatca ggagtgtgtg cagcctgcat gttctttgtt tacaataaac gtcacaattt 60
aatcgtgtct gcagctttca gctctgttat atcttgtgga aatgcagcgt tggactgtct 120
tatcaccgag gtgtttccaa caaatttgag ggctactggg gtggcaatat ctatggtagc 180
tgctcgactt ggaggcataa ttggcaatgt ggtaattgca actttattag acatgtattg 240
tccagccccg acatttattg tagcactact attggctgga ggtggtctga tgtgtctatt 300
tttgccaaac acgaccaggg aaccactttc ataagaaaat ctcatcgtat aacagtcggg 360
cgatataata aatataattt ttcttctgct ccaccccaaa aacttgattt tgaatttaaa 420
tacttataaa ataatgagtc ttttcttata aaaatgtata taaataatta tcctanagtc 480
gttcattaat tanttcatta atgatgactt cgttattaat taataactan taccnancat 540
cnanaaaaaa 550

```

<210> 354

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 354

```

taatgtcgtg gaaaggtgaa aaactgagtg ttgtttgcac agttgtaggc aaacctacac 60
caacagtgtc atggaaagtt attaattgaga cttatgacga atcatccgat cgaatcaaat 120
tgtagatca tgacaatata ccaaattctg ctttggaagt tgatttggct gaaaaaagcg 180
atcgaggaga atatacatgt attgctacta atcaaggcat tgggaattact gttaattcta 240
caaccttggg tcgagttcaa gataaattag ctgctttgtg gccatttttg ggtatctgtg 300
ctgaagtaat aattttatgc gcgattattc tcatttatga aaagaaacgc aacaaagctg 360
aatggagga gagtgataga gatcaaagtn cagatcgaaa aaatactcct gtcacatgaa 420
ggcactgtgt gaggcataag aagtaancaa aanttaatcn gttgaataaa agttatgccc 480
ngagtgaagt atcaaagn 498

```

<210> 355

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 355

```

tattgttggg tggatggtga ctttcatcag ctgctttgag gatatcgtga gcggcactta 60
acataactac atatccatag ttgttgcata atccaaggat ccagtaggcc accagggtccc 120
gccagaggcc tctgtctttt aaaggagtggt attcgtgagg cgattctgga ttttctgttg 180
gagtcacatc tttaaaaatc aagtaaaaaat cacagatgta tgcttacagg ttaatttaat 240
ttatggagca gaggttctcc accaaaaatc gaagatactt taaatattgt aaacaagacc 300
acacttcaag tctggttaaa atttaaccaa tgtatgatgt cctgaatgta gatttctgct 360
agtccaaata atgtttcaat aaattgtaat tcagacacaa ctattctaag ttactaggc 420
ttctccaaca atctaaatcc aactcattat cttcttctta atatgcacca agatcagtc 480
tttggtcatt ttagccta 498

```

<210> 356

<211> 269

<212> DNA

<213> Ctenocephalides felis

<400> 356

```

gtgttgagtg gtatcaaaac ttggtcaccc agtttatgag agaagtcttg ccacaacatt 60
tccaaagcat ttgtctggtg tagcaaaaca tcgtgcccac tccatgggct ttcgtagact 120
tcagatactg cttccattaa agacttgga gcactttgca cagctctaata acatcttatg 180
tagttattaa attccttttg cagtctatta gcactatttt gctgcctggg gaagttttgt 240
aatgctcat caaaaatatc atctgcggt 269

```

<210> 357

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 357

```

taatgtcgta gaaggtgaaa aactgcgagt tgtttgcaca gttgtaggca aacctacacc 60
aacagtgtca tggaaagtta ttaatgagac ttatgacgaa tcatccgatc gaatcaaatt 120
gttagatcat gacaatatac caaattctgc tttggaaatt gatttggctg aaaaaagcga 180
tcgaggagaa tatacatgta ttgctactaa tcaaggcatt ggaattactg ttaattctac 240
aaccttggtt cgagttcaag ataaattagc tgctttgtgg ccatttttgg gtatctgtgc 300
tgaagtaata attttatgcg cgattattct catttatgaa aagaaacgca acaaagctga 360
aatggaggag agtgatacag atcaaagtcc agatcgaaaa aatactcctg atcacatgaa 420
ggacactgat gtgaggcata ggaagtaaac caaaaattta atctagttga ataaaagtta 480
atgcaccaga gtaggaag 498

```

<210> 358

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 358

```

cttggcatct agttttgtaa attcagtttg gctgtttatt ttgctgcgat atttcaatgg 60
atttttcgta tctggaggaa gtgcaacaat atatgcatat ttaggagaat ttcataatcc 120
taggcacgag agcagggcta ttatgggagc gtcaagcatc ttcggatttg cgtgtcttgc 180
attaccgacg gttgcatggt taattataaa tcagaaatgg tcattctata ttgacttttt 240
gggatataca tacaagccct ggaggttgta tatggttgca tgtggtttgc catcactgct 300
ttgttgtttt gctttgtgga aattaccaga aagtcccaa tttttgatga atcagggaag 360
aaacgaagaa gctcgtcaaa ttattgcaa aatgtataga attaatactg gtaaaccaga 420
aagtgaattc cccgtatcat caatcttaga tgaatatcca ggagtggatg gtgaaaatac 480
aaataaaaaca aagaaatc 498

```

<210> 359

<211> 749

<212> DNA

<213> Ctenocephalides felis

<400> 359

```
ccatttgcaa ggaattatca gtgtaatcca aaaacaatcc tgtccgcacg caagcaaagg 60
gttgcgatgg tcctgggcct ggtggcgggtg gtggagggtgc agctgtcgcc aagcactcgg 120
ataaaggcgc ttgcacgcat tgttggtaaa gcgcgctgaa gtatgtctgt ccggcgcatg 180
taaagcgacc cacgttgaaa ttccctccag agagtctcac acattcaaaa tatactttgc 240
atgttttgtc tgctggatct gcaaatgagc cgctctgcac gcagttgtat atgggcgggc 300
gcgtaggtgg ttgccaaggc gctggaggat ttcttaggca ctccgaaagg gaagcgacca 360
cacattgctg atacgtgctg ctgaagtaag tagaaccagg acaattgtaa cgcgctacac 420
tgaatcctcc gcctgctttc aaagcacatt tgtagtatcc ttgcaagtg ctgtcatagg 480
gatctataaa catccctttc tgacgcatg aaaaaagaag cggcgggtgct ggtgtaattg 540
gccgtagtcg tagtaatcgg acaattggag gangcanang tgtaattaaa cattccgaat 600
atgtagggcc cacacatntt tggtaaaact cacttatatc caagttncat tgggcntaaa 660
aaatganccg ttttgcanag caccctttta aaccaagntt gnacttggag tacctttggg 720
cgggacacnc ttaacccaaa tnttgenga 749
```

<210> 360

<211> 450

<212> DNA

<213> Ctenocephalides felis

<400> 360

```
agaattagaa ttgacacaaa atgctttagt gaangaaatg aaattaaaaat tgatgattat 60
tgatngattt tataccaaat gaaatcaaag ataaatttta tgcaaatgca aagtttgatg 120
aagatttgga catatggaca gttgcaataa ctaaagaaat gttgccacca agacgaccga 180
tatccaaacc aggacggcgc aggcctatct ctgaggtctc tttggttaa agacattacc 240
ctggcttggc aggtatacgt cacagaggtg agaattattt tgagtatgac ttgggcatgc 300
catttcgcac cacatttgaa tacgaagccc caacagtgtc cccagcggtta caatcagtat 360
tagaagatgc tttacaacca gaaggagatt tagaaatcac ttcaccccggt caaccgtctt 420
cagactgccc aaatcatgaa aagacctagt 450
```

<210> 361

<211> 426

<212> DNA

<213> Ctenocephalides felis

<400> 361

```
cttgatagaa gaatttatta ttaatacata ttatatatat tgaatataga aagcaaactc 60
attataaaaa tattaatgca cttatgtcaa tagtttcata tagtattgcc agggaaagct 120
aagtattaag tataatatat ttagttattc ttaaacatat gttgttgttg ttttgataaa 180
gctgtgtctt aaaatgactt tatatacagc aattatcttc aataatcctt tccacaattt 240
tgctcgggtg gtttttagtt gctcaaactc atgggtgtat tgttttccac atatgtctta 300
atttctttca tcaattccga tgatgggttt tgctcacgtg tgagaatcca agctaattcc 360
atttttcttc gtggatgaat tgtgcagctc cacacaatag caaatttatc aaaatcgctt 420
tttagt 426
```

<210> 362
 <211> 420
 <212> DNA
 <213> Ctenocephalides felis

<400> 362
 ctgaattcca gatgtagtga agtaaggaat ctcaaatttc acttgatttg ggggttttcc 60
 ttccgtatct tcacattcca cacttgga tccaaaatgt gctctcatta ggtattcttt 120
 accacctgga aatgatttta tggaccaagt aaatgcattc aaatcaggag catatttaac 180
 acttccaatt gttgttttaa acttcgggga atctgcatca gctggtacag gaatcagtat 240
 ctccacatta ttgacagtgt accgtctttt aaattgtgac ttagctttga tcatgtattc 300
 tacacggctg tgtgcgtgcc ttcaattac tgattcaatc catatcaagg gttttacatg 360
 tgtgttaagt cgataagaca ttaactcaaa ctctccatca ggaggaataa atgatatggt 420

<210> 363
 <211> 218
 <212> DNA
 <213> Ctenocephalides felis

<400> 363
 cctgggtggtt tntggtagt ggggttttgg tggttctaata gggaggattt ggtggaggat 60
 tttggcttan gggntgggaa tcggganggt tccattggtt tcattcangt ttgaacttgg 120
 agcanttng gatgggctta ttcatcatt cgttgantgn ggntgggcgt ctttaacgtc 180
 actggtaaat aaacgcctg gccccanggtc aagtctgt 218

<210> 364
 <211> 432
 <212> DNA
 <213> Ctenocephalides felis

<400> 364
 attccaaata tcaactataag agctaaatag ccttccgtca ggtctccatt attaacctgg 60
 tcgaccacaa aataaatatt gattgcaatt actaaaatcg atagaaggat tgcaacgact 120
 gaattaaccg ctccattaac gaattctccc atgatagcag cattgctggt aaacgctata 180
 gtcggtaggg tcgcaaaagg tagttgtaag gacatcactg cattcagaag gtcgttcata 240
 cccgataggt cttcgatgct attgaaaaat gccatcagaa atggttggtat gatggcaatc 300
 attcgggtga ataggatcct cttccagcga gaccattgta ggttgaggaa accctccatg 360
 gcgaattgac cagcacaagt cccagtcatt gtagaacttt gaccggctgn caatatttcg 420
 acagnccaaa tg 432

<210> 365
 <211> 390
 <212> DNA

<213> Ctenocephalides felis

<400> 365

```

aaatctccgc cctgcaatct tccccaacc aaccaaccga tcaaatagga agccaactcc 60
aagctgtcca agttctccca acaaacctcg gtttgacac acacagacac caaaacaact 120
atgctgtacc ccaacaaacc aactttgat ctttcacca tcaccaaaa atcgaccca 180
caaatattgg ggcctactac tccccccag gaattctacc aatctactac gataatgggc 240
acggattgtt gaattttaat ctttgaagc ctcaaaacta ctacgccag tattatcctt 300
actaccagaa cagagacag tattatcctt acaattttg atattattat catcacagt 360
tgccgaattc gactactac aggcagcagt 390

```

<210> 366

<211> 376

<212> DNA

<213> Ctenocephalides felis

<400> 366

```

aatacaagt aactcctatt gacttggga ccaactgcac cagtaactnn agcaccagag 60
ctacatttga ccgaatatgt cttactgac atgtgggtaa atgaaacagt tgtcaaggct 120
gatttggatg acctgagaca cggagcattt ggtgggacat acagtgcctt aagtttcacg 180
attcaaataa gtcgtgaaat gggttactat ttaatggatt actttttgcc atcagtaatg 240
atcgtgtcgt gttcctgggt aagtttttgg ctggcagcag accaatcagc acccagagtc 300
acctagga caagcaccat gttgtcattt atcacattag caagtacca aggaaaaact 360
ttacccaaag tatcgt 376

```

<210> 367

<211> 377

<212> DNA

<213> Ctenocephalides felis

<400> 367

```

nctccacagt tccctgcatt gggccccatt cttacatggc gatgggacac aagaaggtct 60
acantenttt atgatttctg ataaatgggt tgacatataa ctataaatat ccaatatttc 120
accattgacg accaaaccgn ggaagcagcc gatcaaccct tgctttatag ttgatttttt 180
tagatgatcc gccggagctc accgatgaac atgctttctt caaatggcca aactgctcct 240
ctgctccaaa tcaaccatca tataatctgt atttatcatg aatctgcatg atattcggtg 300
naatcgatcc aaattttatg ccattctccg ccatttaatt tctatttgaa tttatttcaa 360
tttcttctga ctctctg 377

```

<210> 368

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 368

```

atatatctta catcgaatct aataacattn aagagttatt aattttcatg tcgatgnntt 60
agaaaatgat tcagtagcaa cttctgaatt ttctttgtaa tcgataatac tttctcaaag 120
tataattgca tttcacaaca cagcagcgaa atatgggtat ggtccatatg aagcaatgct 180
cgttcttcta tccacttgct tctgataaat gtctcggtata aagaatgcaa tcaactccaca 240
tgctatcaga gatgttcctg atattaaaaa tgttaaatcg caattataat ctagaattat 300
tcctacaaca ttgcttccaa caacacttcc taatcgaccc atcattaaag atatacatat 360
tgccattgcc ctgagttgtg tagggtagag atctactaat gccgcgttta ccaactgtcac 420
agcaattccg caaaccagca accacaaaata taaatatgat gctattgtta aatgttcaat 480
aatgcacaa attattcc 498

```

<210> 369

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 369

```

aacaaaacgg ttttaattgaa tctgtagttt ggaaattaat aaatatggac agtaaacacgg 60
ggattcaaat aatagcttcc aaagaaccaa aaccaaggca gtttgaagat gcgttggcac 120
tcacaggttt tggaaaattc aattaccttc ttctggctgt gagtggatgc gtattagtat 180
gtgttttgat ggaaactctt ggaatgagtt ttgtcggtcc ttcagcacaa tgtgatctgg 240
aattaacaac aaaacaaaaa ggaatattaa gcgctatagc ttttataggt attataagca 300
gttcacattt atggggattt ttagccgata cgagagggag gcggaaagtg attatgccta 360
cacttcttct tgcatttttt tgtaccttgg catctagttt tgtaaatcca gtttggctgt 420
tattttgctg cgatatttca atggattttt cgtatctgga ggaagtgcac aatatatgca 480
tatttaggag aattcataat cctagggcatc gcacagggct attatggggc gtcaagcatc 540
ttcgatttg 549

```

<210> 370

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 370

```

cctttaagat tcgatgataa tatacaancg gccacagtgg ctgattatgg acaacaacca 60
ctcgctggca catcagcagt agtcgcagga tgggaaagat tcgagacagg actagacatg 120
gcagggtgatt tgagaaaaat caacgtttca atagtcgacg agtttgattg cttcctattt 180
tacatagaag aacaagaatt tacaaaatat cagctttgtg cctcctcttc taaaaaacat 240
atgggcgctt gtaaagggtga tattgnatca ccattagccg tagatggtct tatagtcgga 300
ttatattctt ggtcaggaaa atgtggcgac cccgagaaac cagaagtta ttcaaattta 360
gctgaatatt tcatgtggat cgaccattct ataaaaatat tcacctaat taataactat 420
atgctttgca atcatttatt tatttgacct nggncgggac acccttagcc gnatttgnag 480
atattcatca cacttggg 498

```

<210> 371

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 371

```

tataaattgt atatatgagc aatgaatcaa tttttttaa ctttttgatt ttcctgggcc 60
ctgtagcaaa cttgatattt gacaactgaa ccatcaaagc tatatataaa tattaatcga 120
atctctataa atcttaaata catattttga attaaagata gttaaattaac aatggcagcg 180
ggggctgagc ctttgtcact agctaaagat gtcaaaagag cctgcgagct ccttgataaa 240
ttacaaatga ctggagaaat accagccaca aaaatagctg ccttacaaaa agttttacaa 300
tccgattttt ttactgccgt tcgcgaagtt tatgaacata tttatgaaac agtagatatt 360
caaggttctg aagacataag agcatcagca acagcaaagg ctactgttgc agcttttgca 420
gccagtgagg ccatgccatc cacgagttgt tgaattccta agacagatga aggcttaggg 480
tttaatgtat ggggtgaaaa gaacaaaatt ctccatatca tatcaagaat atccagtggg 540
gagctgtcg                                     549

```

<210> 372

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 372

```

gcttatgttt gtttttattt tgacgttgct aaaatttttag ctttaatgtt tgttttcttg 60
tgataaatta gtttttattt aaaggctagc gcataataat aatgatgcat ctgagcgctg 120
acatatctag tgacttcag caacttgaga gcatcaagac agcaatagat gactcccatg 180
atccaaaact tcagctcagt actaatgaag atttgatat gataataagc ctattgcaag 240
atccagtttt tcgaagcatt gttactactc aagattcact aggtgaattg aattcccaaa 300
taacacaaca tccatcaata ttaccaggag atttgatat aactacttca ggtgatctaa 360
ttctgcggtg ccccttctc ttgatttata tgataatgag tactctgatg aacaaagagt 420
accctctgac aattaagtcc aggtagccct cagagggttag gtatagcatc ggtnggggca 480
gtcangggaa cattacattc atgaagggat caatntngca atgaggcaac cntgatggat 540
attcccaaa                                     549

```

<210> 373

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 373

```

gcaaaatag atcaatactg tatatttaac atacacgcgc acatatgcat atatatatgt 60
atatatatat atatatatat atatacttat atgcatataa agcaatatca acatctattt 120
agttttcgat attctgcaaa taataatgat cttaaattac aaatagaata ttacatttaa 180
cagctaagaa tttgcagttt cacaataact gccagtcacc aaatgggtatt cagaatatca 240
ttcaaaacaa tttagccaat aatgtaagat gaaatacaga tgattataga aacattcaga 300
atttatacac tataaatatg aacattaata ctatgtacca cttaaaatgt gaaatctgaa 360
tacgtcattt gatgactgcg tgtaacaaga acttggtata gattataaca attataattt 420
aatatatctt tttcattttg taaccccaaa agagcattcc tcgcgtcttg cacgacttgn 480

```

ggggtgtggt agtgtgatga tgatcatgta gatggtgatc cttatatcac ggttgggtga 540
cgagattat 549

<210> 374

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 374

atcaaacaaa gaaaatgaaa accagtgttg taaaacatga aactgaggat actataaaaa 60
gtgaacaaag cgatcaatca attattgaaa tagatgatta ataatttgga aaactatttg 120
aagacgatgt aacaatataa gatttgtgac gttgaatcac atatatgtcg gtaaatgatg 180
ttttcctggt tcggaaaaac tcaactagta tttatttgcc atcatttaca aagccgtggg 240
aatagctaaa cctaataagag tctccattcc atttghtaagc aatttatata taccacata 300
tatatgcaa tatatatata tatatatata tatatatata tattattttt 360
aaatgctgga ccatgtttct tctaaatntg agtttaatgt ngcattcttt cgatatcgaa 420
tcattagttt tatgttttta taagggtgat aattatttca taagactgtc actggagaaa 480
tatgttattt attaatataa tattaattaa atatatacat taccactat gtataaatgt 540
tcataaatc 549

<210> 375

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 375

cttaggaatt gtggcagcaa gtccagccat atatagtga tttacacatt gtattcgcaa 60
atcgtattag tgtgtaagtt ctgtattttt tttctatatt tgaattatta ggaatgatca 120
ccaacattgt gtatattcat gtcaaataa ttgaaaatgt tctatttaga tgtgaaactt 180
gacatgattt aatttaattt aaatatgtat tttactttgt tcatgataaa ggcatttata 240
tttaaaaaaa tatattttac tatgtgtatg taagtataca tgtacatgca tacatacata 300
tatatatata tatatatata tatatatata tgatggtaga ggcttggatt tgtaaatatt 360
ttgaagagct tcgaacaaag aatccaaagg taataaaaaa ccacaaagtt tgttgaaaca 420
atttttttat ttactgtcgc gtttcggaac taagtatggt cacctgcagg acattgcaag 480
aacatcatct taaacaagca atatacttag tagaataaaa tgctggattt tataaatgac 540
aaattgnga 549

<210> 376

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 376

atggaatagt gctaacaaa gcaaagataa accaatctcg cgtcgccac atcagtaacg 60
gcataagaat cattccactg gtccaccgga tggactgcat catggcaatg tgtgctctat 120


```

cttcacttct ggatatttcc atcgcaatta tcaaagggct ttgaaaaaca gatgtagatg 180
ttagtgaacc aagaaaagcc gctgttataa aaacaataaa ccaactggaa gttaatgctg 240
taattagtct tccggtgacg attgtgatga gacttaagta aaatactggc cttcttccaa 300
tcctatctcc taattgtcca aaaataaatg tgcctatgac ttcgcctgca cgtccaatag 360
caaatgtatt agttacatag agttctctat cacaaacca gtcttgatct gacggagccg 420
ttgataaata catgttctgt catattcata accatgctga caaggtatta tttgactttc 480
aatcttattt gtctcttc 498

```

<210> 377

<211> 598

<212> DNA

<213> *Ctenocephalides felis*

<400> 377

```

agtaagaagt aacttaaacc gcaaacgacc cagcatatca ataacattat tgtgttcttg 60
gcgagcgctc agcttgtgaa caaactcatc attccaaaaa catgttcagg ttcagacgaa 120
taatctttta gcatttctaa tgcatcatca ttcaatgttg caccattaac tttggcaatt 180
gtgcgtaaag ttttttcaca tttcttcatt tttcctctgc ttgctagcca tcttggtgat 240
tcaatcatat atttgttatt aattaaaaat attgcaaag gcaatgaaga aactagaaca 300
aaatcaaacc aatttctcaa ccaccacatc aaaagaggca ttgtgcaaat tccaaacgct 360
caccgaattc cttgtaacat agcgacgtgt gagttttcat cacttgctga tatttccatt 420
cctatgacaa gaacagtctg gtatagagac atctgcgggn agtgcaagtc ccacatatcc 480
aantacatac caataatatg aactagttag aaataagtta aatatttttc ctacataatc 540
aacaccatgc tgagaaaaaa tactggttcc ttccaataca tccctaattg tcaaatac 598

```

<210> 378

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 378

```

cttggcatct agttttgtaa attcagtttn gctgtttatt ttgctgcgat atttcaangg 60
atTTTTcgta tctggaggaa gtgcaacaat atatgcatat ttaggagaat ttcataatcc 120
taggcatcgc agcagggtta ttatgggagc gtcaagcatc ttcggatttg cgtgtcttgc 180
attaccgacg gttgcatggt taattataaa tcagaaatgg tcattctata ttgacttttt 240
gggatataca tacaagccct ggagggttga tatgggttga tgtgggttgc catcactgct 300
ttgttgTTTT gctttgtgga aattaccaga aagtcccaa tttttgatga atcagggaag 360
aaacgaagaa gctcgtcaaa ttattgcaa aatgtataga attaatactg gtaaaccaga 420
aagtgaattc cccgtatcat caatcttaga tgaatatcca ggagtggatg gtgaaaatac 480
aaataaaaaca aagaaatc 498

```

<210> 379

<211> 451

<212> DNA

<213> *Ctenocephalides felis*

<400> 379

```

ttctgttcga agtaggaaat agttcgagtg tatgcaaaat aactactgca aatactgcac 60
tcatgaataa acgaccaata agtgaaatta ccattaatgt ataagcataa tctaaactga 120
aagatagaat tggatatgaaa cagcccgtag cagacataaa taatagaaaag tttatagttc 180
ggcgtccaca aaatttcagt agcggcaaag gtatgaaata acttatacac tcaagcgatt 240
cactcataat gccgtatatc attttttcga caggcaaatt aatatcgttt attgccatag 300
catagtaacc gagagcactt gaaaaccaag taacaaggca aataagtaat ctatgtctca 360
tttctgtatg ctttaagtata tcagttatct ccacaaaact atttttaact ttctgccagc 420
aagatggttt tttaccacca tctgcttgag t 451

```

<210> 380

<211> 401

<212> DNA

<213> *Ctenocephalides felis*

<400> 380

```

agtccactca ataaagtagc gacacctccc atcgtcagtg ttatgttatt aatccataaa 60
acatttacgc tagtatttga agccaaaacc ccgcatatca ccctagtcaa tgtgttagat 120
ataccaatag ttgataacaa ccaagctggt tcatcatcgg tcattccgct ggttttgttt 180
ctctgagcaa tatataggaa tggattaag taacccatca tagtaaagaa accactgaag 240
gcgagcaaaa ggaatgacgg cgaacgcac aagttcatat ctaacatggt agcgagagtt 300
cgacggaacg cttctgggca aagcttgcaa gaagactggt cttcgacatc cgcccagta 360
ggtaatctag ttacggacat gtggtatcca atagaagtcg t 401

```

<210> 381

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 381

```

ggccctggag aagatgccct tcgactcacc accgaatatg gagctgtcta cgatcaaaaat 60
gccaccattg aagttcttaa taaacagaag aggaaaactt tgtgccacac tgatggcgaa 120
ggagttgaat gcgaaacaga agaaggagc atcgcacctc aaataatact atttgttgcc 180
caattaattt ctggagtcgg tggatcttta tactacactt taggtgtatc ctatatggac 240
gataacacca aaaaatctaa aacaccagca ctgatgagtt tttcttattt tcttcgtatg 300
ctcggacctg caaccggtta tgccttggtc agcgtctgtc taaagttcta catttcgcca 360
acgttgacgc caacaattga taataatgat cctagatggt taggagcatg gtggttaggt 420
tggttgatac taggatcaac ttttaatttt ttgcaacgt tgattggatt gtttcctaaa 480
atctgccaaag agctgcaa 498

```

<210> 382

<211> 461

<212> DNA

<213> *Ctenocephalides felis*

<400> 382

```

atgaatccaa ttcggcaagg agcaatcact tcatcatttg aatgcccatac gtgatgctgg 60
gtcttccata cagaattcac agttgtatgt ttaccctcag gacaaccttc agtcgacata 120
tttaggtaag ggaatttcaa attcccttga gcaatgttaa tttgggctcc acttaccatc 180
caactgacca ggattagact tgcagctgct cccacaaaaa ctcccttagt gtttgcttta 240
gggaacaaga ttccaatgt aaacattccc aaaagtgttc ctgcagttac accagtaaca 300
ctgatgacaa ggtgcatgac gcttcctaata tgttctacta cgaagacaag ccccagacaa 360
attcctccaa ttactactac agtcaacttc ataataattac tggcagtcct ctcagtagtg 420
ctaaccggta accactcctt aataaaatct tcataaagtg t 461

```

<210> 383

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 383

```

aataaatata attttattat ataagaaaca tatgtataac aatacaaatt ataactatgt 60
aacagtcttc ttgtgataat ttcttgacgg ccgtatctgt agactttgat acaccttttt 120
tcggtaagct ccagaacacc tgatccctgc cgaatacgtg agcttcagtt agcgtttccg 180
gtaacttttg gtgtaaaagt tccggcaaga acattccgga agtcgcgccc accatcatca 240
ttacggaaag tacagcgtac ggatatctgg cgtcatatgt ggttcccaag tatacaatgt 300
atgggcctaa tactcctaata gcatttgaaa ctatagttcc aatggaaatt cctgtctgcc 360
tcaaacaggt tggatatgtt ttcattgctt gcagattcac aacataaaaac gtgatgctta 420
tgcaaaaattt cattaccacg gctaacagtg ggaccaaatt ctggagggat tcatcattgg 480
caatgcatat aagaatgg 498

```

<210> 384

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 384

```

atcnnncnnn atangtggat ncaagaatn ctangnatgg gcctaanact nctaataatgc 60
ttgaaactat nnnccaatg gaaattcctg tctacctcaa actgggttga tatgtttcca 120
ttgcttgacag attcacaaca taaaacgtaa tgcttatgca aaatttcatt accacggcta 180
acagtgatac caaattctgg agggattcat cattggcaat gcatataaga atggaagatg 240
ctgccagagc aattccaaaa gaagctacag aggtccaacg tcttctatt ctgtcgctgg 300
agaaacgtcc tagtagatat gctggtaatt ctactgccga ttgatataaa aagttgagaa 360
atggattacc tcccatattg ctacagttca aaattaatgt aaaatacgtc acggaacata 420
caatccagca aagcacaata agtgtagtat ttctagctaa acgtaaaacta gaaaataaac 480
tcatgattcc gtaaactttt 500

```

<210> 385

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 385

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cattaaagaa gtatcttttag gaccaacaag ttttagctgct ctgatgggtt tggaatattg 60
tcatgaaaaa ccagtcgaat atgtagtttt actaggcttt ttagctgggt gcattgaact 120
tatgatggga ttactgaaac ttggattttt agtcgatttc ataagtgcc caatcgatc 180
gggtttttaca tccgcgatgt cgtaataat ttttgtgcg caggcaaaag gtttgctagg 240
gctgcattat acaggacatg gatattgtgga tacattgatg cagctaatac aaaggatata 300
aaatgcgaga ttagctgatt ctatacttgc cttatgctgt atagtttttc ttttaacatt 360
aaggcaataa aaagatttga aagtctccag tcctgtttta aaaagaacct tatgggttat 420
ttcaactgga agaaatgcct tgatcggttt aattacagcg ttgcggctta cttttgggaa 480
angaattctt ggnaagcc

```

<210> 386

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 386

```

aatattttta attcataata tgtatatgat tgaatcgcca agatgggttg nggagtcgat 60
gtaaaataga acgatgtgaa aatacattaa aaatcatttc cagcgatanat aagacaactc 120
ttaatgaaga tgcaattaga gtgttaagag aaaaatcctc aggaaaacca gaaaaagttt 180
acggaatcat gagtttattt tctagtttac gtttagctag aaatactaca cttattgtgc 240
tttgctggat tgtatgttcc gtgacgtatt ttacattaat tttgaacgtg agcaatatgg 300
gaggtaatcc atttctcaac tttttatata aatcggcagt agaattacca gcatatctac 360
taggacgttt ctccagcgac agaataggaa gacgttggac ctctgtagct tcttttggaa 420
ttgctctggc agcatcttca ttcttatatg cattgccaat gatgaatccc tccagaattt 480
gtcccaactg tagccgcg

```

<210> 387

<211> 396

<212> DNA

<213> Ctenocephalides felis

<400> 387

```

atggattcat gtgcctttac ctttagtatt tgccgaatat ttttcacagg agagatttcc 60
ttcagcatac ggactgttca tgttcttgca aggaataatg acattggctt tgggtccaat 120
tgttggtatt attcgagatg caacacacag ctacataata tgtttccatg ccttgactgt 180
gtgtttactc atttgctgta taccatggct tgccgagatg gcgtgggtta aaatgaaaaa 240
taagaaataa atttaagaat taagttaata ttaatggaaa aattatata agtttatgtg 300
aattttatca cacgtgttat atatctttat aaaagtaatt tataaaggat tgtcacagaa 360
aatataaatg acaaaaaaaaa tgtttttnaa aaaaaa

```

<210> 388

<211> 203

<212> DNA

<213> *Ctenocephalides felis*

<400> 388

```

agagaacatt cggaagtga gtagcctgtg aacaagcatg atggatacca aatggacttg 60
gacagtatgt tgaagaggtt gggacatgtt ggaaaatttc aacttctgaa ttgcctgttt 120
atgtgcatta caatattgct atttgctatg tatgcgatga gctatgtgtt cacagcggga 180
gtagttaatc atagatgttt agt                                     203

```

<210> 389

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 389

```

gtcnntcggg cagtcgggtc tgactcgccg tacaagatag tgattcggtt tagtgcgggt 60
gtttttgttg ttgaacttat gtgcctttta cttaaaacttt tcaaatttat tcaatttcat 120
caagtttttg atttcgactg tgacgtacct ttaacaaata ctaaaaattt gaaaagataa 180
aaaattgaaa tcgaacaaaa taaattaaag tacaacaaat ggagaaagat atggaaaata 240
atgaggacca aaaagagatc aaaatggaat ccggcgaaga aagcatgcga ccagttttaa 300
acacacctga tccagtcgag actgccacag taatagtacc tcctgatgga ggatggggct 360
gggtcatagt agccgcatca ttcatgagca acatgatagt ggacggtatt gtgttctgat 420
cggaccaata attgaagaga tcaaatttca tttggtgcaa gtaagctaaa gtagccctta 480
tcagttcgct gtctccggat tctatctgat ggtggtcctt ttagtggtgct tgcgaatcga 540
ntgggttcc                                     549

```

<210> 390

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 390

```

gcctgtggta ggtcccagga gcaaggagt gaaatgttgc ttctgtctcc acgttcggac 60
tgcaacaata tgtcttgga tttggcattt gatgctgcac ttggttgac tatgtgttct 120
tgtgataatt ttgcattctc cgaacctgat aaaccaattg gagcaccag atcaatcaat 180
gatgggtgta ggtgttggtt ctatttctcg ttataacgga gacaatagct tgtaaaca 240
ggttgatgat aatggaacac ctttgggaga aatggagcat cctccatag catatagaga 300
ccactcactt acatatcatg atgtggacat ggtgtgctctg gttacaattt gtacactggc 360
cataacatta atgatgttat atggagcagt taaacaaaag cctgcacata ttttgccatt 420
cttctgcttg caactatttg attttgcata actacactta ctgcacagga tatttggtta 480
tttgcgagct gtcatagatt gtatcagaaa gtcgcattac caatgagaga agacttttga 540
actaaccca                                     549

```

<210> 391

<211> 304

<212> DNA

<213> Ctenocephalides felis

<400> 391

```

cattgtggat gaggcaaadc ccatatacca tgatgaagtt tgcttgtttc gaaagaacag 60
ttgaattggt atacactcat gtggttccca aaccagagc agaatgcact aaaggtgaac 120
aattggttgt cacctttgct gctggttaca ttgccggtgt attctgtgca gtagtttctc 180
atcctgcaga cacagttggt tccaagctaa atcaagacaa aggagcaaca gccattgacg 240
ctgcaaaaaa cttggctttg ctggtttatg gaagggatta ggacctagga tcatcatgat 300
tggt                                           304

```

<210> 392

<211> 229

<212> DNA

<213> Ctenocephalides felis

<400> 392

```

cgtgggtttg gagtatctgt tcaaggatc atcatctacc gtgcagcata ctttggttc 60
tatgacaccg ctggtggaat gttgccagac cccaagaaca cccattagt tatcagctgg 120
gccattgcac aagccgtcac aactgttgct ggtattgtgt catatccatt cgacactgtc 180
cgtaggcgta tgatgatgca gtctggacgt gcaaagtctg aaatgttgt           229

```

<210> 393

<211> 408

<212> DNA

<213> Ctenocephalides felis

<400> 393

```

gaaaaatggc aactgctgtt tggtgcatag gacaaggcat tttcatggca ggttagcat 60
tctctggtta tgatcacatc gcggtattg tggtcatgac tctggcgact gcagttaatg 120
gagccgtttc aactgggcca ttagccagct ttgtggattt gaggccaat tatgccagta 180
ttacgctggg attgagtggg atgattctcg taatgcctgg ttttatttcg cctgctatcg 240
ttggtatact aacatttgaa aaccaaacga tagagcaatg gcagaaagtt ttctcctag 300
cgacagcaat gttggtcgtt tgtggtcttt tatatttggg gtttgcggac tctaattctac 360
aatcctggaa cagtccagat aaaatcggtc aagatccgaa gaaattgt           408

```

<210> 394

<211> 129

<212> DNA

<213> Ctenocephalides felis

<400> 394

```

aagcaagttt tcttgggtgg agttgacaag aagacccaat tctggcgta cttcgagga 60
aacttggcat ctggtggtgc tgctggagcc acatcattgt gcttcgtcta cccattgat 120

```

ttcgcccgt

129

<210> 395

<211> 427

<212> DNA

<213> Ctenocephalides felis

<400> 395

```

catgattggc cgctgatgta ggtaaaggcg ctgggtcaacg tgaattctct ggattgggca 60
actgcttgac caaaatcttc aagtctgatg gtctccctgg attgtaccgt ggttttggag 120
tatctgttca aggtatcatc atctaccgtg cagcatactt tggattctat gacaccgctc 180
gtggaatggt gccagacccc aagaacaccc cattagttat cagctgggcc attgcacaag 240
ccgtcacaac tggtgctggt attgtgtcat atccattcga cactgtccgt aggcgtatga 300
tgatgcagtc tggacgtgca aagtctgaaa tggtgtacaa gggaacactg cactgctggg 360
ccaccattgc caagacagaa tgaagtgggt ccttcttcaa gggagcttcc tccaatatcc 420
tccgtgg

```

427

<210> 396

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 396

```

atccaagaaa ctttaaaatg cacatctagg gaaactgatt taccaccaac accatggtgg 60
gcaattttgga catctgttcc attgtgggca cttattttgcg cccagattgg acacgattgg 120
ggtttcttca caatggtaac agatcttcca aaatacatga acgatatttt gaagttcaac 180
atttctgaaa atggattata ttctgctctt ccatatgtcg tcatgtggat cgtgtcgtat 240
ttatcagcaa tttggtgcga tcatatgttg aagaaaaaga tggtgagtgt caccaatgcc 300
aggaaattat tcacaacgat agcatctgtt ggtccagctt gttttattat tggagcatca 360
tttgcgtggt gtgataaac tcttgttgtt gccttgttca ccattggaat gggtttcatg 420
ggaactttct acgccggtat gaaaattaac gcattagatt taagtccaaa ttatgccggt 480
cattgatggc cattgcaa

```

498

<210> 397

<211> 305

<212> DNA

<213> Ctenocephalides felis

<400> 397

```

caatcatgat gatcctaggt cctaattccct tccataaacc agcaaagcca agtttttttg 60
cagcgtcaat ggctgttgct cctttgtctt gatttagctt ggaaacaact gtgtctgcag 120
gatgagaaac tactgcacag aatacaccgg caatgtaacc agcagcaaag gtgacaacca 180
attgttcacc tttagtgcac tctgctctgg gtttggaac cacatgagt tataacaatt 240
caactgttct ttcgaaacaa gcaaaacttca tcatggtata tgggatttgc ctcatccaca 300
atggt

```

305

<210> 398
 <211> 342
 <212> DNA
 <213> Ctenocephalides felis

<400> 398
 aatactttga atacttcata aagaccgaat ttgcaaagac cctgcatgga gtatccaaca 60
 aaggttggag cccaaccttt agcaagacct ctagcaccat cttccgctag agttactttg 120
 aatccattga atactgattt gtattttgca ggatctactt gaatacggca tttcactaaa 180
 tcaagtggaa cgaccatggg gtgtgttaca ccgcaagaaa taattcctcc aaatccgcaa 240
 agagcaaagt aatgaccaga tccaaaggca caggaatctc ctgttgcatc tgaggtggag 300
 gctgccattg ttgccaatga tttagattca gcttcacatt gt 342

<210> 399
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 399
 tttttttttt tttttttttt ttttttttta ttattgaaat tcattttattg aatataatta 60
 aaatttcaca tttttatatt cataatttta ctacatttct aagccttcat tataataccc 120
 gttgcctgca gctccactag ttttacttgc attagaatta atattgtttg gataatcgct 180
 atttttaata cttgtatttg tattagttaa atttttggcc catggctgca cttcgccgga 240
 tgcaaaaaac caatatatca cagctcctaa caaatatatt ccacttgaaa tgtaaaatac 300
 aatttgccac gatgtgagta aatcatctcc aacctttcca ttaacaatga aaccagtcaa 360
 ttgagggctg attattcctg gcaatgttgc aaaagtattt gacaatccca tcagaacgct 420
 agcatattgt ggtgcgatgt ccaaatgatt tacactgaat ccagaccaag caaaagcgcc 480
 caaaccacac gcgactgcag 500

<210> 400
 <211> 383
 <212> DNA
 <213> Ctenocephalides felis

<400> 400
 cgctgcccaa tggtttattt atgatgccgt caaagtctgg ttgcgtatgc cagcaccacc 60
 accaccagag atgccagaat ctctcaagaa gaaattagct gcccaacagt aaaaatagat 120
 ctgtgatgat cctctcaata atgcatgtat cagcaatatt acaattgaaa ttgcaactaa 180
 catctaaaat agcagtatca gtgatggact attcaattta gtaacaatgc tgtctaactg 240
 gatcacgttt ttcattccaa attttaattt taaatgaaat aggcaattat aatagtatta 300
 caatttcctt taacaaattt gtgaaaaacg tttctggttg atgtgtaaat aaaacaaaaa 360
 aaaaaaaaaa aaaaaaaaaa aaa 383

<210> 401
 <211> 188
 <212> DNA
 <213> Ctenocephalides felis

<400> 401
 taagccctta tagaatccat taagtccttc atncttatag attttgggaa ctgcttcacg 60
 catggtgtta gcaaatccag gcatagtctg gatacgaact ttagcagctt ccatgggagc 120
 taaagcaatg tcagcaaaga attctgcact agcagaagcc gacaagtaaa gcgatgtcct 180
 ccataagt 188

<210> 402
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 402
 tttttttttt tttttttttt tttttttttt gggtatataa aaatatttgt actatagnta 60
 gttctaaata tacatttgtt cacaataata taaatattat ataatcattt gtaaaaaaaaa 120
 ttaatataaa aatctataca aatatttatg ttataaatta ctataacac ngttacaatg 180
 aaagaaaaaa atagcactac tatacacaaa gtctttgggt atatgaaaaa tatttaaatt 240
 caatctaatt aattttttgc ttttgcata tgtaagattt taccatgcct tttatatcag 300
 tgaatataaa agtgcctata aatacaagtg cagtaccgat ccaatgtatg attgtaaatt 360
 cattattaaa atatacaata gagaacaatn atgacacaaa ttttctaagt gtaataacta 420
 aggnactgt taatgatgaa cattctgtag tcagcncatc nctgggcttt tgcccggtt 480
 tngggttatt ncntttcccg 500

<210> 403
 <211> 487
 <212> DNA
 <213> Ctenocephalides felis

<400> 403
 attattactt ttataaaaaat ataaatctat ggatatctat ataagggaga ggtgtggnna 60
 acctacatga ttaaagtatc acttttattt aattaattag ctattatgta taggtaattc 120
 tatttagttt tgtttaatta attaattact cagccttgct tattattatc gatttcgata 180
 cggaaagcca aatcctgcat cgagtcgtgc tttagaaggg acttcttttc gggatcttta 240
 acttttctga ttgggttttt gtttttacca tatctatttg taacaccatc atcctcgtcc 300
 atcatectta aaatagttaa ttgatccgat gaatctaagg gggccacaga aatatcacga 360
 acggctctga atttaccaca attattcaaa tgttcgtttt ccaaacggaa gaaattccat 420
 acaaacctcc taaacacttc caatggtgac agtatagatg taagaatgtc cccgctcaca 480
 aaattgt 487

<210> 404
 <211> 343

<212> DNA

<213> Ctenocephalides felis

<400> 404

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tttttatgct gatttagggg taattaaatt agcagaagac atagagttta gtgataaggt 60
gcaagctgta aacattcacc aaagtgaat ccaaggtggg gaggaatgca aagcaactgg 120
atggggtcga ttgggtgccg gtcaaccaat accaaatgcg ttgcaacagt tggcaaccac 180
tgctttaagt aatgagaagt gtaaagaagt tactggattc ttcgagccca catcgcaa 240
atgtgtattc aaaggatctg gaaaaggagt ttgttttggc gattctgggtg gacctttagt 300
ttacaatgga gaacaagttg gagttgcatc atttatattg ggt 343

```

<210> 405

<211> 387

<212> DNA

<213> Ctenocephalides felis

<400> 405

```

ntgtcaacna ttgcaanta ttggnaatt tggcnaccat tanataatta cccccancna 60
cccanantgg anacggcccn aattggggta ccanacctg ccanacnanc nggtttgnca 120
nanttngtgt anacaanatt tgangtantt ttaccaaac cnatntnatn gtggnangtg 180
tncgggttaa attggttatn aacnatnatt tgggcaactt tgtanccaac nccgccanca 240
tncaaanagt tggtnccaac nacaanaaga atancatttg ganatttatt taanacccaa 300
ttaccaccat taanaancca acnattgcng atnatggaac caccacanaa ttgtccttgg 360
ttggttctca aagacaccat aaaaggt 387

```

<210> 406

<211> 127

<212> DNA

<213> Ctenocephalides felis

<400> 406

```

aagagggcca ccggagtctc cagagcaagc gctaaactoca ccagtcaagg gtccagtgca 60
caagtttggt gggtgcaatg gagtagatcc ggctcctcct agagcctttt cacactcggg 120
gtatgggt 127

```

<210> 407

<211> 415

<212> DNA

<213> Ctenocephalides felis

<400> 407

```

cgaagggaac aactttgagt gtaactggat ggggcgccac gaaggaatgg gggccaattt 60
cgccaaagtt acaagaagtt aaagttaaag cttactcaag tcaagaatgc aagaacagtc 120
atgctattaa cagtgcacatc atttctgaca gtatgatgtg cgctggtttt cctcaaggac 180
aaaaagatac ttgtcatggg gatagcgggt ggccacttgt agatgaaaaa caggttcaag 240

```

taggagttat atcctggagg cgaggatgag cgcgacctgg atatcctggc gtatatataa 300
aattgagcca cccggaaatc caacagttta ttaaaaacaa tgtaaaattt taaatcataa 360
aactgtatga ataaacaatt acgaaaaaaaa aaaaaaannn aaaaaaaaaa aaaaa 415

<210> 408

<211> 445

<212> DNA

<213> *Ctenocephalides felis*

<400> 408

cccaggatac aatccctata agtttcctgt ttttgtcaac taatggacca ccataatcac 60
cgtgacaaaa accgccacct tttgcagaac cagcacataa cattctatca gtgattctgt 120
ctggttttcc tggttctgca taattacttt gacatactga agaactctatc anaggaatcc 180
aagcaccaag taattctgaa gaatcgtttc cttcgggtctg gttagctccc catcctgtta 240
cataaactaa agatccataa ggagtcctcat attgctcatt agctaaattt acaggtcgac 300
tattacacac tgtaagttaa ataggatttt taactttaac cagagcgaca tcataatcaa 360
aggtccttat attaaatttc ggatgtaaaa ctatgtcggg tacctcgtat acatttccat 420
ttgaattgtg gtaggaactt cctgt 445

<210> 409

<211> 445

<212> DNA

<213> *Ctenocephalides felis*

<400> 409

aggaagttcc taccacaatt caaatggaaa tgtatacgaa gtaaccgaca tagttttaca 60
tccgaaattt aatataagga cctttgacta tgatgtcgct ctgggttaaag ttaaaaatcc 120
tattaaactt acagtgtgta atagtcgacc tgtaaattha gctaatagac aatatgagac 180
tcctgtagga tctttagttt atgtaacagg atggggagct aaccagaccg aaggaaacga 240
ttcttcagaa ttacttggtg cttggattcc tctgatagat tcttcagcat gtcaaagtaa 300
ttatgcagaa ccaggaaaac cagacagaat cactgataga atgttatgtg ctggttctgc 360
aaaaggtgac ggtttttgtc acggtgatta tgggtgtcca ttagttgaca aaaacaggaa 420
acttatangg attgtatcct ggggt 445

<210> 410

<211> 352

<212> DNA

<213> *Ctenocephalides felis*

<400> 410

gacaatctaa taagggccac atcatgttcg aaagatgtaa agttggtgtc aaagtcggga 60
tgtaataaat aaaaattggc atccacaatt ataccagcgt aataagccct aaagctgcca 120
actcgaactt gaacttgttt ttcggttcgg acatttttga agcattgagc aacagtgagc 180
acaaaatata tactaactat gactcctcca caaatatgat cacctctata taaaacagat 240
gccacgtaag gtaattcgct gatgtcagca ggctttcctc cgatcatatc agaactcggtc 300

aaatttttgc tttctgctcc agaaaataat acaataaaga aaattgcaaa gt 352

<210> 411

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 411

tggatatagaa taaaattttt ttataatcag aaattatctt cgctttaact tttgatgcat 60
attattttat gagatatatt tataataaat attttattca gaattgttca ataaaacatt 120
gtccgtgttt ttgtgaatcc agtccaagaa gtgatatact cttgcataga cgtctggcac 180
tcctgtgcca catggaatac caaaagatac tactctggca acaactgggc catcagggtc 240
tcgaacgac agaggaccac cggaatcacc catgcataca ccaatgcccc gtttccggaa 300
agcacacagc attgtttcag ttatatcatt ttgtctagaa actttattct tgattgggtc 360
ttgattgaga aatttttggc aaatgcgact ttcgtatgag ataccatca tttttgtaa 420
atgatctggt atttgaccaa atggagtagt ttgtcccaa ccagaaactt caacagtctc 480
tccgccatgg tatcttct 498

<210> 412

<211> 386

<212> DNA

<213> Ctenocephalides felis

<400> 412

cttttatggt gtctttgaga accaaccaag gacacttctg tgggtggttc atcatcagca 60
atcgttggat tcttactgct gctacttgcg tgtaaataa atatccaaat gatattcttc 120
tcgtcgttgg aaccaacact ttgaatgctg gcggagtagg atacaaagtt gcccaaataa 180
tcgttcataa ccaatttaac cagaacacat accacaataa catcgctttg ctaaaaacta 240
catcaaatat tgtatacaca aactatgtca aaccagttgg tctggcaagc tatgatacac 300
caattggagc agtatccact ctggctggat ggggctactt atctaattgt ggcaaattcc 360
caactacttg caaatcggtg acacgt 386

<210> 413

<211> 348

<212> DNA

<213> Ctenocephalides felis

<400> 413

ctcatctacg gtcaatggac ctccagaatc tccactgcat tgtgctctgt cataatctgg 60
ataagctgcg caaatttgct ctttataaat gggctaaaag tgcaaatcac cacattcctt 120
ggatccgacg atctggtagt gcaattcttg cagatgtgtt tgcaaaactc cgtcggtagt 180
agaatttatt ccccatccga caagagtagc tgggtgcattg tgtttagttt gttcatttgc 240
ttctggcaaa gtaactgggt gcgcaaatat actatatttt aagggttcag atagcttgag 300
aagtgcgaatg tcgttgatat aactgttact aggattatat cctttgtg 348

<210> 414
 <211> 147
 <212> DNA
 <213> Ctenocephalides felis

<400> 414
 cattgccatc taatgagttt gatcccatat agacggattt taaaatgccg ggtttttaggc 60
 aatgtgcagc cgtcacaatc caacgtttgt tcaagatgga tccaccacag aaatgctcta 120
 ggtctcgatt tctcaatgaa acttggt 147

<210> 415
 <211> 467
 <212> DNA
 <213> Ctenocephalides felis

<400> 415
 ctttacatat tgcagttggt cggggtcgtc ttcattctcc cctaaatttc cccagccagt 60
 aacagtggnt aattctcctg atggcatgtc tttccaaca tcagtaagtt tgactgttct 120
 aacagntctg ttattcaacc ggaatggtct tcgaaccttg atgagggcga catccatata 180
 gatgtcagtt acattaccgt atgcaggatg cttgataatt tgtgccacag gatgaacgga 240
 accacgtctt ccttggaac tgggtgccgac tcgaactgaa tacgtgaatt catcatatat 300
 gcaatgagct gctgtgacaa tccaataatt attcaatatt gaagctccac agaaatgttc 360
 gttaaatact tggagtgaag cttgatagcc atatttgga atatcagcat cttgnctcca 420
 acaatgcgcc catctaattcc atcctttatc ttgnaagatg agacggc 467

<210> 416
 <211> 346
 <212> DNA
 <213> Ctenocephalides felis

<400> 416
 tcattacggt gtggaatggc tcgtccctca tcctcgttat gatagccgcg atcaaaatta 60
 caatgtaggt ttaattatga taacaaagga tttcaatgaa actagaagaa gccgacctgc 120
 caagctcgta gaggcaaagtc tcgacttgcc tgtaggctcc tttgtcacag ctactggatg 180
 gggatctgaa acgataccag gagcacctat gtcagaaaat cttagagcaa tatctttgca 240
 cgtcattgat aatcaagaat gtcttgaaaa aaatcaagag ttgattgatg tcacagacaa 300
 aatgttttgt gctggatcaa tagaagataa aggaaaatca gtttgt 346

<210> 417
 <211> 312
 <212> DNA
 <213> Ctenocephalides felis

<400> 417

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aattcttggc tataagttcg ttgcatgttt tgcaagtgat ttgnttattg catttattnc 60
cgtggcatat ttacatgaa tcagagtttg cattacaatc gttaccctga tctgatttgc 120
atcctcgagt aatgacacct ttttcaattt ttgaatagca gtcgcctttg gattcataca 180
aactttggtc ttctgtcttc ctgcatcttt gaaacattcg tttcttagtt ctggaagttt 240
ttgaacgtta caaccgatt tctcgcaaca cttttttct cgntagtcg agtcacaact 300
ttctttaacc gt 312

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<210> 418

<211> 315

<212> DNA

<213> *Ctenocephalides felis*

<400> 418

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aattcttggc tataagttcg ntgcatgttt tgcaagtgat ttgnttattg catttattcc 60
cnggggatat ttacatgaa tcaagagttt gcattacaat cgttaccctg atctgatttg 120
catcctcgag taatgacacc ttttcaattt ttgaatagc aagtcgcctt tggattcata 180
caaactttgg ncttctgtt tcttgcattt ttgaaacatt cgtttcttag ttctggaagg 240
ttttgaacgt tacaaccgga tttctcgcaa cacatttttt cttgggtagg tcgagtcaca 300
actttnttta accgn 315

```

<210> 419

<211> 387

<212> DNA

<213> *Ctenocephalides felis*

<400> 419

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aaactggntt atccctgggtg tcaatgggag ctggnggnnaa tactgncaca naaanagcng 60
cgggnttacg tcagcctnaa ncaaaagaaa aaatncaaga tgactaccat gcattgatga 120
acactctnaa tacacaaaaa ggngaaactc nggaaattgc caacaaagtt tacgttatgg 180
aaggctatac attgaaaccc accttcaaag aagngngccac caacaaatnc ttagctggag 240
cagaaaaactt gaactttgcc caaaatgctg aaagcgctaa agttatcaac acttgggntg 300
aagaaaaaac tcatgacaaa attcatgagt ngatcaaagc cggatgatcta gaccaggatt 360
caagaanggn tcttgtcaat gcattgn 387

```

<210> 420

<211> 236

<212> DNA

<213> *Ctenocephalides felis*

<400> 420

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aatatatattt ttgacatcat agtaacgacc tcctttgttt agtttggttg atccgacgta 60
gatggaactc aaacggcctg cgactagaca atgtgcagca gtaagaaccc atttttcatt 120
aagaatcgat ccaccacaaa aatgtttcaa gaatttatct nttaaagata cttgaaatgg 180
agcagaaccg ggggcggcgg tctgcnnctc cacaattctg gtgtgggtcat tggaag 236

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<210> 421
 <211> 447
 <212> DNA
 <213> Ctenocephalides felis

<400> 421
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 gtttaatttg ttagttgagt atcaaaattt tgtaaaacat ctctgtcttag ttagtctcgt 120
 cttagtcatt gaaattaagg aatatcaaaa aatatttgta atattataag ttaaaactct 180
 tatattccag tgtgcatttt gataaattct cttattgggt ttgaagccac tcgggtatat 240
 actcctggga ttctgggtcg tgcacatcct attccccaag acactattcc atgcagaact 300
 cccttagagt tgacgagtgg gccaccgcta tctccttggc aagagtcctt accgccttca 360
 ggataaccag cacaaatcat atttgggta attattagtc cttcatttcc atatatagtt 420
 ttgcactgag tccagttaac aataggt 447

<210> 422
 <211> 367
 <212> DNA
 <213> Ctenocephalides felis

<400> 422
 tttntttttt tttttttttt ctttttttagg gantttttat atttatttta tgaacngctc 60
 tgatttttaa attttaacat gtttactgat aaaatctcta acaattgggtg atgaaattng 120
 tgtgtatact ccgggactga ccgcccttgc acacccgtcg cccaagata cgatccccac 180
 aagagtntta ttttnntnga caagttagcc cgcgntgttt ncttggcacg aatccttttn 240
 ttcgtcaaga aatccagcnc aaagcatgtg ttntgtcaat gtataacgag cagcatacaa 300
 tattttacag aaagaaaagt caatcactgg tatagaaacn ccgcgaaggt tttccgaaaa 360
 aacttgt 367

<210> 423
 <211> 432
 <212> DNA
 <213> Ctenocephalides felis

<400> 423
 cagatgtata tgcaagagta tactattatt tggattggat ccatcaacat actgataatg 60
 nntctattga acaactcaga ataaattaat tgaaaaaata gctaagttat catagtaaag 120
 atcttgacgt ntttataaga ttttaataat aaaaaacaat catagataaa aaatcataga 180
 tagataaacc atagaatgct gtccctttgt atggcaaact gacaaattga ttttaatcac 240
 taccaaatta ttttttgtaa ctatgataaa atattctata aaactattcc tactaattta 300
 tgttatagat gaggtgatag tataggtcag tcagcatatg tgatatttac cagtatattt 360
 aagttgaaac cattaaattc agtattacgt gaaataaatg caaaaaaaaa aaaaaaaaaa 420
 aaaaaaaaaa aa 432

<210> 424
 <211> 354
 <212> DNA
 <213> Ctenocephalides felis

<400> 424
 tacctcatct acggtcaatg ggaccctcca gaatctccac tgcatgtgac tctgtcataa 60
 tctggataag ctgcgcaaatt ttgctcttta taaatgggtc taaagtgcaa atcaccacat 120
 tccttggatc cgacgatctg gtagtgcaat tcttggagat gtgtttgtaa aactccgtcg 180
 gtagtagaat ttattcccca tccgacaaga gtagctgatg cattgtgttt agtttgttca 240
 ttggcttctg gcaaagtaac tggttgcgca aatttactat attttaaggg ttcagatagc 300
 ttgagaagtg caatgtcggt gatataactg ttactaggat tataaccttt gtgt 354

<210> 425
 <211> 498
 <212> DNA
 <213> Ctenocephalides felis

<400> 425
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 cccgtgggg cgaacaagga tattaccgag tataccngg tgatggaact tgcggagtgg 120
 accaaatggc tacttcagcg gttttggata aaccagttgt taactagaca aaaatacacc 180
 aagtgcacaa tatgatcctg ccaaacttt ccatgtttat aagtagtgcc aaacaaatta 240
 tcttcggcga ctgaaatatt ggacaacttg catgcatttt tgactatttt aaattgaaca 300
 gttcagcatt atttatgtct ggcagaataa cagaggcaaa acaaacaat gncgatcaaa 360
 tattacaatt cgatgngctc ttaatttgca taaatataga tattatacta attcaaaaag 420
 caatctgctt taaaatgaga atataaagga gcaagncgtc agttttcttt tacatggtaa 480
 aatatcgaca acataaga 498

<210> 426
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 426
 ccagtagtat tagtagatth agccgaaagt ggaactgaag ttaaactctg agcaatactt 60
 agtgtcactg gatgggggtc aactaaggaa ggtggcgng gaactttgca actacaaggt 120
 gtgaaagtcc cagctatctc tcccaaagat tgtgctaagg ggtatccacc ttctggaggt 180
 aaagacaaaa ttacagacag natgttatgt gctggtcttn ctgaaggagg taaagatttc 240
 tgccaaggcg acagtggcgg tccactggta gatgaaaata gaaagcaagt aggagtgggt 300
 tcttggggtc aaggatgtgc cagaccagga aaaccaggaa tttatgctaa agtgtcacac 360
 ccgaaatca gaaaatttat tgaaaaatat gctaattgtt aagtggattt tatttcaata 420
 taatgtgatt taagatactc tttaatggta tgtaataaat tnggataaat taaataataa 480
 aaattggaga actggaaaaa 500

<210> 427
 <211> 360
 <212> DNA
 <213> Ctenocephalides felis

<400> 427
 aaaatcgaat cgttggtggc aatgatgtaa gtttttcaaa aaatgggtgg cangtatcag 60
 tgnaaagtaa taaccaacat ttctgtggtg gttcaatcat tgctaaagat tgggtgctga 120
 cttcttctca atgcgtcgtg gacaaacaaa gtccaccgaa ggatttaact gttcgtgttg 180
 gaactagcac tcacaatgat ggaggaaaag tgtatgatgt tattgaaatt ataaaacatc 240
 cgaaatataa taaagcagtg ccagatgatt ttgatgttgc acttttacgg atcaaagagc 300
 caatatcatt tactccatgc acagtaactc ctgtaaaatt aatacaatcg ggaaaagaag 360

<210> 428
 <211> 266
 <212> DNA
 <213> Ctenocephalides felis

<400> 428
 ttttctacat ctttgtcaac ttcttgaatc tttttatcca acattttctc aatctttgta 60
 agatcgtctt catcataagc gtctccgcaa atcttacgag ctacaacatt ccattcctct 120
 attacatcat cttgtgggta gaactcagaa agatcagatg agtaaggctc tggttcacct 180
 ggactgatgt tattgtctcc catatatgtg attaaatcac ggaagtcgac atcacattga 240
 attggatttt gtgaaaaatc aatagt 266

<210> 429
 <211> 328
 <212> DNA
 <213> Ctenocephalides felis

<400> 429
 caacacaact ctgcacatat attgcanttt ggaaaagggtg catgtgctgg tgattctgga 60
 agtccttttg cagcagggtgg ccaattagta ggtattgttt cctgggggtg cccatgtgcc 120
 actggtgtcc cagatgtcta caccagagtc tatgcttacc gcgattggat cagatattac 180
 actggatttt aatctcctaa actcatctca tttgttatat tgtaaattat gtaaataaat 240
 atgaaaaatg tataatgaaa atacttgtaa aataaaaagtt acttttatta agaaaaaaaa 300
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 328

<210> 430
 <211> 235
 <212> DNA
 <213> Ctenocephalides felis

<400> 430
 tttttttttt ttagttttta taattattgt agatcaacat gttatattac ttgcatagn 60

gngatatcgg ttactaaata ccagtatgtt tcttcacaaa ttctcttatt tctggatcag 120
 ctagtcttgt aaatacattt ggatatggaa aacttgtgca atttctagtt gaaaaagctg 180
 tcaagcctac taaaacccca ttttcgtcaa cgacgggtcc accaaaatca cctgt 235

<210> 431

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 431

cgngngtggt atttttaaata aagaatatgt tcttactgcg gcacactgtt tcaatgatgt 60
 aactcatcat tcggaaattc aagtcagagt tggaagtaca aatgcttatt acggaggaat 120
 aatcgtggat gttgaggaca ttacagtaca cgaactttat aatgaaaagt tcacaaatta 180
 tgatgtagct gttgtgaaat tagcttatcc attaagattt gataaaaata taaaagcagc 240
 ggtactggca gaggatggat atgagccaga aataaattct aagggtcactg tatccggatg 300
 gggtagtttg agctaccttg gtccataccc agaagagcta caacaggtag atttgcaggt 360
 cgcagaccac gacgactgct cattgcttac atggcacacc tcgacctgcc gaaagtcaaa 420
 tttgtgctcc gtcttggtgg agtcaaagac tctgccaggt gactctggtg gcccctgctg 480
 agaatggcgt cgcgtagcat gtgtccttgg tgccgtgcgc ggaccagata tcagagttat 540
 ctagattgg 549

<210> 432

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 432

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 gtctgtaaag aaaaccgaat tattggtgga gaagaagcta atatagcaaa acatggctgg 120
 caggtgtcac ttttattatt cggaatcat tattgtggtg gagtaatcat tgacaaaaat 180
 tggattttta cagccgcaca ttgcattgaa aatgaaacaa atgccaataa aagatattca 240
 gttcgagttg gaagtagtac acatgaaaag ggcggaagaa tatacaaagt caaagaggct 300
 attttacacc cagaatatga tacttatacg gtggactttg atgtagctct gattcgctta 360
 gccgaaccaa ttgcattcac cgcctgcaca gtgcgcccaa ttcaaatagt agatgaagga 420
 gtaaaaacat tggatggggc aatgttaact gtaccggatg gggatccaga cgactggtgg 480
 agattaacta cagaattaag aacgtaatgt ccattattaa taagaaaaat gtgatgaatt 540
 tattctcca 549

<210> 433

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 433

gaagatatga agactttttt caaaatatcg gttttaatcg atctgtatat gttgacaaat 60

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gttgctgctg aaaaaaattc tggctgaata gctgggtggaa aaataataga tatatcaaaa 120
tgtggatggc aagtttcatt gcaaacattt gatcagcatc tttgtggtgg ttctataatt 180
aataatcatt ggatactgac agcagctcat ggaaatgctg atacttattc aattcgtgtt 240
ggaagctcta ggcacgactc cgggtggtgt gtatataatg tcacaaaaat tataagacat 300
cccaaacacg atgaacaaac atttgatttt gatgttgctc tgggtacgtgt taacacacct 360
atcaagttta cagtatgtaa tagtaaattc gtcaaaattg aagaaaaagg catcgaaaca 420
cctccaggaa aaatggtcca agtcacagga tggggtgcag aacaagctgg aggtcccgt 480
catatttcct gcaggaacat ggttctattg nagcaatgga tctgcaagaa atatgcagaa 540
gattaaaac 549

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<210> 434

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 434

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ttcaacttgt ggatggcaag tttcgtttca caataggaaa ggacattttt gtggaggggtc 60
catcattggc aaagaatgga ttctaactgc tgcgcattgt gtaaccaa atgaaaacga 120
tatcgaaagt ttaaaagtta gggttggaag caatgagcat aacaaagggtg ggcgtttata 180
cgacattaaa gaaattaaaa aacatccaag atataacgat cgaaccagat acgattttga 240
tgtcgcttta ttacgcattg caaagccaat tgcatacact gcttgcaactg ttgttcctgt 300
agcattggca gaaactggaa aagaagttcc agaaggcgca ctcgtagtg tcacaggatg 360
gggggctact atggtgggag gccagcatca acgcatctaa aaggtgttaa ggggtccaatc 420
gtgtcaaatg aagaatgcaa caaaaattat ccattcctgg aggtctggat gacaaaattt 480
cagacagcat gttttgcctg gttcctgaag gcggaaagga ctcgtgtcaa ggagangcgg 540
tggcctgta 549

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<210> 435

<211> 465

<212> DNA

<213> *Ctenocephalides felis*

<400> 435

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attgtattca gtgacaaagt tcaaccaatc aaaattagca aaagaaatat caaggatggt 60
gaaatctgca aggccactgg ttggggtcga ttggcggatg gggcccagat accaaacgaa 120
ttacaacaag tggaaaccac tgtaataaca aacgaaaagt gctacgaatt gtctcaattc 180
gttgaaccaa cttcgcaaat atgtacatta aaagaatttg gaagaggcat ttgctttggt 240
gattctggtg gaccactggt ttacaaagat gaactggttg gcgtttcttc gtttctcttg 300
tatacttgcg gagctggacg ccagatggtt ttgtttaaag tgcgcgattt ccaatcctgg 360
atcaattctg aaattagaaa aaattaaata gatatcaatc ataatttctt gtaataaaaa 420
atggttaaat aaagacagca taatctaaaa aaaaaaaaaa aaaaa 465

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<210> 436

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 436

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gcnttaggcc tatgcctagg tgaaaaagtt atattcaata actataaagt ttatagagta 60
attgctgaca acttcgaaca agttgagggt ctgaagaatt tggaaaagga ctctgatgcg 120
tacaatttct ggacccatgt tggagcccca ggcaaaaatg tagacatcat ggtaccccca 180
caciaaacttg aggatttcga aagcacgatg caataccata gaataaacca cagtgtaatg 240
agcgatgacg tccagaaaga tatcgaccta gaagtttttg gtacaagtag agaagcttac 300
agttggacca agtatcaaga tcttgaaaca acctatgcat ggatggacag cttagccaag 360
gcacaccag gaaaagtcac tgttctcacc attggcaaaa cttttgaggg aagagacatc 420
aagggagtca agatttcatt cggaactggc aaaccaggcg tatttattga cgctggaatc 480
cacgcccgcg aatggatcac actgccactg cacttacatc ttaaacgaat tgtgactcca 540
aagacgccg
549

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<210> 437

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 437

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gaaatataaa atttcttttg tatatattgg ttttatgaat gatcagatga gtggatttta 60
cagaagttct tacaccgagg acgggaaaac aaaatggatt gccaccactc agttccagcc 120
aactcatgcc cgaaaggctt tcccatgctt cgacgaacct ctttttaagg caactttcga 180
catttctata attcgaccaa aacatatggc aacttttagga aacatgaaac atctgaggaa 240
agatgaagtg gttgcagacc atcctaactg actgaaagac accttcaaaa ccacactcaa 300
aatgtcatct tacattgttg catttgttgt ttcggaattc aaaagtgttt cccaaaaacc 360
tgatcaggaa tttgatgttt gggcccagacc caatgcatat acgcagggtc aatacagtta 420
cgatattgga aaacaaactt tggtaaatta gaagagttac tggctataat tcgngccaag 480
gatggaaaaa tggnatggna gcttttctgt tttctgagcc ttggagaact gggcttntac 540
ttcaggaac
549

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<210> 438

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 438

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aacaacacatt cgtggagggt ttgtttaata tcatccagcg cgcagcaacc tcaaagaaca 60
tgacacagaat taaagtctga cactctggac atccaatgcc aaaggggatt tcgctcagtg 120
ccctgcacca gccgtatgca gcccgggacc agggcaaaact tggcatgcaa accaggattc 180
cagttgtctca aagaaccaga gttctcgcaa attaattgcg gaaatgatgg gatttgggat 240
aattgtttgt tttcttgca accagaatgt ggaaatccaa caccaattga aactgttttt 300
aattcggacc cacctgtaac gtacttagca ggtcaatgc catggtatgc aatgttgttt 360
acccgaaggg aagatttatt caaaggacaa tttctattca gttgtggggg gtcaataatc 420
aactcacgaa tgatagttac aactgcttat gcgctcataa gccagaaatc gattggatga 480
tcagagagtg tgtggatcta gtgtattcgt ttaataaaca gagatnttat gctagcntac 540

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gaatagaaa

549

<210> 439

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 439

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agcatttgtc agtggctgtg ttttaataca ctgggttata gtcattgcga taacaaataa 60
ttagtataaa atcgccatt taataacact agccatcagt tttcaatcga acgttgaaca 120
agaaacatta aaggataaag gggtaaagga tatTTTtgat ttttcaaaat gaagttgcta 180
gtattatttt taacattggc cgcctgcagt agcgcctgat ctttctttga ttggtgaag 240
gaagaatgga gttcattcaa gttggccac aagaagcgt atgaaagtga aaccgaagaa 300
aagtccgtc tcaagatctt catggaaaac aaacacaaag ttgcaaaaca taaccaacga 360
tatgaaatgg gtttgaatc ttacaaacaa cgtatcaaca aatatgctga tatgttgac 420
catgaattcg tccagacttt gaatggattc aacaagacca gatcaaagtc cttcgtcttg 480
tggtgtcgaa aaattgcgtg gagcactttc atctctctgc nacgtagaat tgcaaacatg 540
tgactgcgtg                                     550

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<210> 440

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 440

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gttcnnnccg ccacanacat tttcaaaatg ctaaaagcan caacaataat ttttatcgct 60
ttcaattttg tgtctgtgg cgtttatgat ggttacaaac tttacgaaat aagaccccaa 120
acaaaatccg aggcttacga tttaatggaa tggcaagtaa aaccaggagt cgatttctgg 180
tccgaagcca ggatgctcaa tcaggctagc caggttatga tctcacctga acttcaggag 240
gaattcgaag gatattctgt caatggtaat tatacttggg aagttgctga ggataacata 300
gagagacttt tacaagattt tgaaagaagc agaaaaaagt caagtgcgcc acgtgacgat 360
ggatttgatt tcaatgatta tcaaagatcg caaacgatca acttatacgt aaacaaattg 420
ccaaaacgta tccaaaatat gtgactgtta aggatgaagg aagaagtttt gacagcgaat 480
catcaaattc gtccaattac agatggatca attccaaaaa caagcgcgat ggtgatcgct 540
gtggtgccat                                     550

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<210> 441

<211> 548

<212> DNA

<213> *Ctenocephalides felis*

<400> 441

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ctcctccagg tcctaaggac aatgatacta tagcaattta taaattttta gatactgaat 60
tttatgctga ggttgaata ggccatcctg taaagtattt caaacttggt gttgacactg 120
catgggcaga aacatgggtg gcctcgaaac aatgtggatt aaaatgtgtt ggatgttgga 180

```

```

atcttaataa atatgactct ttggcatcat caacatttca agaaaacggt aaagaatttt 240
cttttggtc aggcaaagaa gccataacag ggttcttttc aatagaaagt ttttatattg 300
gccacataaa tgtaaaaaat cagacttttg gggaaagtaac atgtttgcca tggcactact 360
tgttttcaaa agcagatgga gtattaggat tagcattcag cagtttatct attggcaaca 420
taatgccaat attttataat atggttatca acaattgatt aagaaacctt tattttctat 480
ttattgaata gagatccaac gcaaatcatc tggttcatca tgatcgggca tcaaactcta 540
acattata 548

```

<210> 442

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 442

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tttggtgat cctgataagg aaagtcaggc tgaaccttca ccatacaatt accgatggga 60
aattccaata acgtacatca cgaatgttaa agacgattat aaacttgaat ggttcccgag 120
ggaagatgct caaaaaacta ttcaagtagc cgaagatgtc gaatggataa aactcaacaa 180
tgatcaaatc ggatactaca gagtcaatta ttctgaggaa atgtggcaaa aattgagcaa 240
tgctatgaag aaaaggataa ttagtttttc agcctcagac agagcccatt tattaatatga 300
tgctttttcc ttggccgaag caactttgtt gccctattca actgctttgg agatgacaac 360
ttatttgga aatgaaatgc attatgttcc atgggcagtt gcctctactg aattttattc 420
tttgaaaaaa ttgctatttg gaagtgaagt tatgagaaat ttacgaaata tgcactagaa 480
attcttcagc tgttatgata gaataaaatg ggatgtcatg atgatgaaaa cattngataa 540
catctcnag 549

```

<210> 443

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 443

```

ctttgtctca gccaatccgg ctggaaggat cggttgaggc gagaacgctg atgatgcctc 60
tgctccttat caggtttcac tacaatttaa aaacttccac ttttgtggag gttctatttt 120
gaacaaatac tggatcatta cagctgcaca ttgcatgggg agacgttttg aggtagtagt 180
cggtattaac agattagacc aggaaggcta tagataccaa gtagccgaaa tagtcacatt 240
gccattcgat tccgaaacaa ataattatga tttggcactt gtaaaagtta agaagccaat 300
taagttcaac tacagggtac aaccaattcc tttgggcgaa gaatatgtcg aaggaggtga 360
agaagctcgt cttacaggat ggggcagatt aggagctgat gacctgcac caaacgaatt 420
gcaggaattg aacactttta ccatcagtca taaaatttgc aagaaagctc accanatgtg 480
gttaccgaag tcagatatgt gcatttgaga aaaagaaaag ggctgctggt gacttgtggn 540
cattgncga 549

```

<210> 444

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 444

```

ggcatccaaa actttatcta ttttgtgctt ttnggtattg ttctacctag tttcggatac 60
cgaatccttt atcttaaaga ccaataaaac tgatgagaag atcgttggtg gtgaggaaat 120
aagcataaag aaagttcctt atcaagtatc attgctccat tttaatggac accgtgtgcg 180
gcggtgtgat tctgactaga caatttgtcc tgacagcggc tcattgcttc atgttcgtct 240
acagccacga agaagtcaaa gtacgtgttg gcagttctga aataaaccat ggaggaatga 300
tatttgatat tgaattctat gctcttcac ctgactatcc agaagaccat gatgacacat 360
ctgaattatga cgtggctctt gttaacttg catatccgct taagtttagc gaagacatcc 420
aaccgatcat gatggctgaa aaggactacg aaccaccagc aggaaccaag gcttatgtgt 480
ctggatgggg cagaacatcg tcggtggcaa ttgctaaaaa tcttagagga gttgatagaa 540
ataatagac

```

<210> 445

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 445

```

aaatgaagtc tctattagca gtattgttgt tggttgttgc cacgtcggca acaggaattg 60
attggaaaaa tgtgaaacct atcgagcaac ctgccatcat gagcaatttg cctgcatgga 120
gaaaaactgg agaacgtatt gctgggggtg aagaagctac accacaccag ttcccatcc 180
aggtcgctgt tcttggtcac atggatgatg gcaaaagtgc attctgcgga ggttccttga 240
tttcccaaaa ctatgtgttg actgctgctc attgcgcca taaagcaaaa tctttcaccg 300
ttgttctcgg agctcacaat gtaaccgatg aaaacgaagc cggaactttg agagtagaga 360
cttccactaa agttgtccac aaggactgga acagtttctt attgagaaac gacattgcct 420
tgtaagctg catcaccagt tcaattgaat gatcgtgtca attatctcga ttgccgaaaa 480
aagccaagcc acaccctttt gatattgacg cactgcttag gtggggaaga atggagatct 540
gtncacatt

```

<210> 446

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 446

```

gtancatcag ctgctccacc agccagtga cccaagtat tgggttttcc cgatggattc 60
ccacgagttg taggtggaca cactgccaat gagcatcaat tcccatggca agtatccctc 120
caaagatttg gaagtcactt ctgcggtggt tccatcatca attctgaatg ggttcttact 180
gctgctcatt gcatcagtgg cacttccgga ttcgatccg tagtaggaaa acacgatctt 240
tcaaaaactg aagctactga acagcgatct gccttcaaga gaaccattgt gcacaaatct 300
tatgctggag gcgtcaatcc ttatgacatc gctttgatcc aagttgccac accattcaag 360
ctgaacgaaa acgttaaagc tgttaagctt caactaaaga tgaggctcac tcaggacaag 420
ttacattgtc tggatgggga tctacttcta cttcagcttc ccagctccct aataaactac 480
agactgtgac aaaccaatcg accatacccc ggtgtgaaaa ggtctaggag gagccgatct 540

```

actcattga

549

<210> 447

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 447

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ctgtagtccct agtattggcc ttagggctat tatgcagtga tgtttctggt ttcttcagtc 60
ttcgggtcccga aaaaaccaga gaacctgtcg aatttgtccc aaagtccagg cataacgtcc 120
aaactttgtg ggtgactcaa aaattggacc acttcaatcc tcacgataat agaacttggg 180
aaatgaggta tatgtccaat gatgaacact tcaaagctgg tggaccaatt atcatataca 240
ttggaggtga atggacaatc agtgctggag ctttgattgg tggtaacaa tatgatatac 300
cagtccaaca taatggatat ttattctata cagagcatcg ttactacggg gaaagtcac 360
caacaccaga tgcttctacc aagaatcttc agtacttgag cgtggatcaa tcaactggctg 420
acttggctta ctttgtgatt atgtcaagag tcaaatcaca ggagccaaag acagcaaagt 480
aatcgtgtgg tggatcttac gccgtagtat ggtgttggtc cgctaaatat cctcccagtg 540
cgacattgc
549

```

<210> 448

<211> 520

<212> DNA

<213> Ctenocephalides felis

<400> 448

```

atttggttgg cattcaggat gtaaaaggag cttgtcatgc cgatgaattg ggatatttat 60
tcaaaaatga gttgtcacag tttccaaagg aattggagag tgctgtggtg acacagaaga 120
ggttgttgag tttgtggaca aattttgcc aaccgggaa tcctactcca tcaacaagca 180
atttgttacc agtcaagtgg ttaccagcta ccaaggacca actggtttat ttatcaattg 240
gtaaaaatct agaaataaaa gttaatccaa tgaagaacg tatacaattt tgggaacgag 300
ccaccaagaa agattatttg tcacgtttgt aatggaatat ttttaaggaa aattacctat 360
agaacaaata ctactttatc agtaagttat gtatttcaac tatttaaac cttgcatatc 420
ttgaattaac agtgatttga taactttttg catttttacg attttaatat tatagtaaat 480
ataaatatga attgtgtttt taaaaaaaaa aaaaaaaaaa
520

```

<210> 449

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 449

```

aattcggcac cagaagtgc cgagttagaa gttctgtcgt tttatttgtg atatttgtta 60
gaagtttatt gtaaaaaagt agaagcaata aacatgaaga gtttgcgtct attcgtagca 120
gtttttgctg ctgcagcaca cgccttacc acggcggaac caactacgac tgcagttcct 180
tgcacacctg gagaaaccaa acaagaggat tgcaatgaat gcatctgcaa agctgatggc 240

```



```

acaggatatc aatgcactga aagagaatgc aaacatgacc cagaatcaaa agcagacgat 300
catggaaaaa ttgCGaacc aggatcaacg aagaaagaag actgcaacac atgcacatgt 360
actcctgatg gtaaaaacta tatgtgcaca ttgatgatgt gtggacatca tcatgaaaag 420
agagaaactg aaattgaaga agtcaaagaa gtcaccattc aatcacttgc actacccatg 480
tctctggcca aaacaagatt ggattgnatc ttgcaatgCG cagggtngga caggctcttg 540
accgccagc 549

```

<210> 450

<211> 154

<212> DNA

<213> *Ctenocephalides felis*

<400> 450

```

tgtgtgaaga atattaatga tgaacgagta tttgttgttc tctatgcttt gagtgctgtg 60
tattttgctg gtgtcatggg tCGactgatg ttaactctga ctCGgttgt ctgtgtgctg 120
tcgggaatag cattctcctg tctgctggac ttgt 154

```

<210> 451

<211> 215

<212> DNA

<213> *Ctenocephalides felis*

<400> 451

```

ctctagctcg ccatgaatct acaagagcct CGagagttgt tagaattgca gcagtgcaat 60
ttgcactacc cgaaggactc aacacgtgga ctCctgtggc tgaaatgaga gaggctttgt 120
atggaaaggc taggaatatt atacaagctg ctcatgataa taatgttaat gtgctttgct 180
tgcaggaagc atggagaatg ccttttgggt tttgt 215

```

<210> 452

<211> 160

<212> DNA

<213> *Ctenocephalides felis*

<400> 452

```

ttatttccca atgcanatgc actgctgggtg atttgactcg tatggctaca attgttgccg 60
acaaactagg tgcccaacct ggttgccac caattacagc ttgaccttc ttgcgtccat 120
tacatgccat gtttangcaa agggctctg aattgggggt 160

```

<210> 453

<211> 322

<212> DNA

<213> *Ctenocephalides felis*

<400> 453

```

ggggagaatt tttagagatt ttagatgata gtagaaagtg gtggaaagct cgcaatattc 60
gcgggtcaagt agctcacggt ccacatacca tagtcacacc tcatgcttgt ggatgcgatg 120
atagttttca gagacaagac tctggcagat catctatagg cgccagtga gggccgctcag 180
gacccgtaca gagtccatcg tcagttgact ggattcgcaa ccagcatcag gtaaatggga 240
acgagcaaaa aattgatacct ccaccacctc cgccgttgcc agtaggagaa ttgcgctcca 300
gacaagaatc accggaaccg gt 322

```

<210> 454

<211> 210

<212> DNA

<213> Ctenocephalides felis

<400> 454

```

ggaagcacct taggctgtgc aggacatgta actgtatagc attttgtgcc cagagccata 60
ggtccgcaat tatgacgtaa cggatcatat gcaaaatttg cggggcaata atattgggtt 120
cctatactat ttctgacaca ataataatag ctttgacaat catttatatt tggataaaaat 180
ctcgatggtg acggacattt gaaaccttgt 210

```

<210> 455

<211> 464

<212> DNA

<213> Ctenocephalides felis

<400> 455

```

gnagnnnntn cngccgtcag tgtgctggga attcggttc gagcggggcg cccggggcaa 60
ngtacggtgc acatatattg atgtggcatc tcaatgtcta nccataggta atatacaaca 120
taccctctgc acacttttgc ttcgagcaac atttcgaata agccgctgaa gaacggaagc 180
tggtgcacca ccagtaacag caccaagctg gcaataaatt actgctgtga atcccgcgct 240
tggtgaagct cctaaagcgt ccaggtagaa tggatatcgt gcccacgaat ctgagaatct 300
ggttaaagtc aaaagtgcgc caggattcnt attccatact agaccgcatc gaacagggtc 360
tcctggtaaa cgctcacgga ttatctataa taagtaatat aagttgtaat gattanttaa 420
atttatataa ntaaatattg gntaacgtaa ttataaaact atat 464

```

<210> 456

<211> 292

<212> DNA

<213> Ctenocephalides felis

<400> 456

```

gtcattttac aagtgcatta ttttttagta aaaccttcat tatagtaata gcttgaaaaa 60
cataaatgtt acttcatttt tatatacacg gtgaatttgt tggaaatgga ctatataata 120
aaaatatatt tcttcaagcc gatcgaaggg tggttacaat taaaaaatat atttctatta 180
tatagtctaa gagaaaaata ctctcataac tcctgtgtat ggtcttcggc aaacggggca 240
ttcttttact gacagcgaac actttataca ggacacgaca tggccacaag gt 292

```

<210> 457

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 457

```

aaaactcacc taaagataaa aatgttgctg ttcgaaaaca agaactccct gggcatgtaa 60
cttatcttgc tgtgaattgt gatcatacag ttttgtccat agtggttaact tctaattgaa 120
actttatatt acaattttat gatgttactt catattataa acagacaata gtattagtta 180
gcgaagtaag gctaccacgc cctttgttac aaatgtcatg gaatccctgt atagcaaattg 240
tagtagctgc tactttanaa aatggcacat tgtggtcctg tgaatttggt aatggnctga 300
aaataaattc aacaggaaqa tgatgtgcaa gctttatca! tatcatggag cccgaangga 360
aaacanattg tcattgggac aaaatctggc acattatgcc aattcacacc agatttgaag 420
ccgtnaaaac atcagtgtnt ccnatatnaa agntccataa ttctgttcat ggtgagcatt 480
atcagtttga gctacatt

```

<210> 458

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 458

```

tgaaatgtga agacgacgtc aacgaatggt ttgacccaaa atctttctcg tgcagaactg 60
catgcaaaaag tgaaaacggt ttttccgac gaagagattg taataaatat tatcaatgtt 120
tcttggttaa caacaattgg caaataaaac attatgattg tccaaatggc ttgcactttg 180
ataaaacgga gttgcatgac ataccacgc caccggcgga agaattgcaa agtgagattg 240
ctaagtaagg cttaaaccag gaaaacaatc ttgaatagac taattaggat tcaaattacc 300
ataaagtagt caattaatat aataaataca caaatgatct gtgcaattaa atataaaaaa 360
tatgtataaa aattaaaatg tataaaattg tattttatgt aaggagcaca aacaaaatgt 420
cattaactat agtaatttct gattatttaa aatatataaa tatagaagct ttataaaaaa 480
aaaanaaaan aaanaaaa

```

<210> 459

<211> 267

<212> DNA

<213> Ctenocephalides felis

<400> 459

```

cccgtgtcgc gaccaaagtc gtttcatagc tgctaaaagt tcctcggaag atgcttctgt 60
atcctccata cgttggatta cgtcaaagac cattttgccg tccgtctctc tttcattgtt 120
cccaaaacta atgccaaat tgggcatggc ccgcagtatg gcaaccagtg attgaatggt 180
attactgtaa acaactggtc gatattgttt gaagtcttcg cttgtgaaac ccgactcatg 240
gataattttc atttgtttta cgatagt

```

<210> 460

<211> 351

<212> DNA

<213> Ctenocephalides felis

<400> 460

```
ttgcaacaat gatacgggag tgttggttg taatgcacgc caaatTTTaa ctgtttttac 60
tgatgatgaa tggaataaac taatggatga ctccaaaact aacatcagtg ttgtgcagat 120
gcaaaataat gaattgactc atttattacc gtttcctgca cttgatataa aagttttaga 180
cttgagtcta aacagaattt taagaattga gccagcaact ttcaaaaatc tccaaaattt 240
gacagagttg aacttaagta ataacagggt gacatcaaag tttttaattc catcagtttt 300
tgagggtgat tattctccag atgcatatga gccattaaaa tcgatgaaag t          351
```

<210> 461

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 461

```
ctttganttc cncctcnga agctcntngt gtgctncnaa tttgcgga aa cacctcagat 60
tttagcggca gcggaagaaa tttgtggacc ttatgtctgg ggccgttatg atttacttgt 120
tttacctcct tcattccctt atggtggaat ggaaaatcca tgcttgacat ttgtaacacc 180
tactctattg gctggcgaca gatcgctagt gagtgttggt gctcatgaaa tagcacatag 240
ctggactgga aatttagtca caaattgcag ttttgaacat ttctggctaa atgaagggtt 300
cactgtattt gtagaataca aaattcaggg aaaattgcat ggtgaagatg ttagagactt 360
tcattcgctt tgcggactca caacattgaa agaagagggt caactattag gtgaaaccaa 420
tcaactgact gctctcggtt ttaacttaca aaatttaagt cctgacgatg cattttcttc 480
tataccttac atgaaaggct          500
```

<210> 462

<211> 176

<212> DNA

<213> Ctenocephalides felis

<400> 462

```
ctgtcactgg ctgatgggtc gacgctcacc tacgatctat acaaagctct taatccggat 60
aaacatgaag atgaggtaac tctggcagtg tgccctggca ttggtaactc ttcggagtca 120
gtctacattc gcacatttgt ccattacgca caatattacg gatacagatg tgccgt          176
```

<210> 463

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 463

```

cttattccta aagctagtaa tgccgaaagt aaggttttct atcttaagat gaagggagat 60
tactacaggt atctagctga agtagcaaca ggagaaaccc gtaacaccgt cgtagatgat 120
tcacagaaag cttatcaaga tgcatttgag atcagcaagg ccaaaatgca gcctacacat 180
cctattagat tgggtcttgc acttaacttt tccgtatttt attatgaaat actaaattca 240
cctgataaag cgtgtcaact tgcgaaacag gcattcgatg atgcgatagc agagctcgat 300
accctaaatg aagattcata taaagattca actctcataa tgcaattgct gcgagataac 360
ttaacactgt ggacatcaga cacgcagggt gatggagatg agcctcagga aggcggggac 420
aactagtcct gaaaacctta cctatccact tccgtatcct taattcacc ttatacaatc 480
ccttcgttat ttggtaat 498

```

<210> 464

<211> 246

<212> DNA

<213> Ctenocephalides felis

<400> 464

```

cagattcatg ttgtaaaaca gaaataccaa tgtgtgggaa aagtgaccat cccagcaata 60
ttccttatac gggttgtata cacagtatga ctgatagatt ggaacatcaa ctttggcttt 120
taggagcagt aggcctggga atgtgcgctt tgcccgtatt tggaatgata ttcaactgtt 180
gcctttatat aaaattgaaa gattttattg acgattgaaa aaaattattt gaaattattt 240
taacgt 246

```

<210> 465

<211> 477

<212> DNA

<213> Ctenocephalides felis

<400> 465

```

atctttatca gtgagccagt tagacataac gtgaccacat atacctacag catcccatc 60
aatgttagat agacctgata catcgagta agtagcctgc gaaagcaa at gctgtaaggc 120
gtgtccaaat ttgttgaata aaattgatac ctcttttaga gacagaagag aaggatatatt 180
gccctcagga gggatttaga cttaaaatta atgatgctaa tgggtgttga tccacaattt 240
tacttttatt gcgcatactc aacatccatc ctgaactctt ttggaatata ttctcttctt 300
ctctagtata aggatctaaa taaaatcagc cagtggcaat tcagctgcag aatcatgtat 360
atcaaaatac cttacatctt tatgccaagn attcatattt gcctttcgat aatttttata 420
ccatcaactt ttnacacaac tggaatagcc ccgtcnaaaa cctttggaat nggaagn 477

```

<210> 466

<211> 395

<212> DNA

<213> Ctenocephalides felis

<400> 466

```

ttagcccaag tttcacagca ggtttggcag tcactataat agtatgctcc ctttcatttt 60
ctcctgaacc aactttgcat gtgtaagagc cagcatcatc ttgttcagtt tttcaataa 120

```

tgaattgatg ttcttccttt attaattggt aacggtcctt gagatcattg atttcttcta 180
 cttttttctc atctttaaac cactgatcaa caggaccatc tttcaatgga caggttagaa 240
 ccaatggact acgaatatca aaaagttttt gcgacgtggc ttcaccttct ctggcataaa 300
 cactgctttg gaccaaaaat aataaaattg cactacacaa aaactgcttc atatttattg 360
 aattttcttc cctcgtattg aaatagttca taagt 395

<210> 467

<211> 211

<212> DNA

<213> Ctenocephalides felis

<400> 467

ggaagcacct taggctgtgc agggacatgt aactgtatag catthttgtgc ccagagccat 60
 aggtccgcaa ttatgacgta acggatcata tgcaaaattt gcggggcaat aatattgggt 120
 tcctatacta ttttcgtcac aataataata gctttgacaa tcatttatat ttggataaaa 180
 tctcgatggt gacggacatt tgaaaccttg t 211

<210> 468

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 468

ncantggcca tttttatcag ttctttcttt atcaactgat tgttgagttt ttgctctnag 60
 tgtttcancn aattcttcan tagccgtctc caagaagacc cctcattcta taaacaactc 120
 tcattgattc tccttcgcat tgnncagcca accacacctt tttataaact tctttcactg 180
 gaagatccaa actcatgatt ttgttgntga ccagtaattc cataccattg ncatcttcta 240
 ataatgctac taattcacaa tcttgacaaa tnttatthtt aacatctctc attaatggcc 300
 aagaccaggn tcattctgga atatggatta cccaacatgc gaccctgtaa aaagtcttct 360
 tgttgaggat ccttctcaag agataagaaa aattccccaa tatcattttc ttctggataa 420
 taattgagca aagctttaaata tataaatata ggagttcgac atcntcaatg gatattatta 480
 ctgnttccat gccccagaca 500

<210> 469

<211> 251

<212> DNA

<213> Ctenocephalides felis

<400> 469

aataaatata attttattat ataagaaaca tatgtataac aatacaaatt ataactattt 60
 aacagtcttc ttgtgataat ttcttgacgg ccgtatctgt agactttgat acaccttttt 120
 tcggtaagct ccagaacacc tgatccctgc cgaatacgtg agcttcagtt agcgtttccg 180
 gtaacttttg gtgtaaagtt tccggcaaga acattccgga agtcgcgccc accatcatca 240
 ttacggaaag t 251

<210> 470
 <211> 498
 <212> DNA
 <213> Ctenocephalides felis

<400> 470
 caataaatat tgaatttaca ggcttatgaa caccattaag agtaaaccctc aatttgatca 60
 cagcaccctt ctctcccaac tcaattttct tcgtataccc catgtaattg atatgattag 120
 ccctttcctc ttctctgaaa taaacccaat tatgtagacc tggtacttca caatttttta 180
 attcagctaa gaaaacatgc tcaaatgctg aactaccgat tttgcccctc ctctggagta 240
 taaattaaac caaatcgttt tcaataaatc cttatgagtt tggggatctc tagtcacaat 300
 tcccttttca ataaaaaaat tcataagatg tcgcatcagg ctggtggata acattgcatc 360
 taacaaagca ttttcttcat ttctttcttg tgcagttaca tgttcattta ctgcagtatc 420
 taattcataa ttattaaata atggtttcat aagcgctata gttttaatat caaaagctgc 480
 tgattcacia caagcaat 498

<210> 471
 <211> 105
 <212> DNA
 <213> Ctenocephalides felis

<400> 471
 agaggggtag cttttattcc atttattgat gacatgcctt cttttaatcg caaagtggat 60
 ggaccattta taatgcctgt tgtagacaag tataaagaca tgggt 105

<210> 472
 <211> 496
 <212> DNA
 <213> Ctenocephalides felis

<400> 472
 tttttttttt tttttttttt ttttgaacca ttttataaaa ttttataatc aantcantac 60
 tataaattta taataatata aataacaaaa gttattttat agtagtcata atatactttg 120
 cattaatant tcatacacac acacacacat tacttgtctt ttcaattcca atttgttctt 180
 attctcgtcc ttgttcaaat gtcgatgttc aatggtgtat taagcattct attgtgantt 240
 tagtattgga tttcttaaca ttaaagcagc ttctgatgat attattggca acgcattgac 300
 acaatgatan tttattaaat gtgaaatact ttcaaacatt ntatctctgg tgcgaacca 360
 ctcttttagg atcaataagt aataaatgct tcttattaac tccttgaata ccagtcagca 420
 catattgccca ggacttgctc gtgactctng aactagaaaa tctncatnng ttttaccaaa 480
 ccctnagaac aactnt 496

<210> 473
 <211> 500
 <212> DNA

<213> Ctenocephalides felis

<400> 473

```

aaataattca ggagccccgc aaagtcagan ttctatatga ctttgaagca gcagaagang 60
gacganttga ccttccttagc tgggtgaaata atccatatgc tagatgattc acatcctant 120
tgggtgaaaag gatataatca acatggagaa ggtttatttc ctgcaaactt tgtaactgct 180
gatttatcaa gttgaaccag aacantttag aattgatgct aacaagaaat ctgttcantt 240
ttctgatgct gttcangtca aaactatatc tcatgatgat gaaaccagtc ctgaaattaa 300
tgaagaaagt atagataactt tattaattt attacatgaa gcaaactctg aanatcctaa 360
tgatgataca gagcaaatgc tcaacttaga ngttcangta aataaaatgg gccctctgat 420
tgatgctgaa ttaagaaaat attgacagga aacatgctca acttacgcaa ttgagtggcg 480
atttagtaga agcacttant 500

```

<210> 474

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 474

```

tttttttttt tttttttttt tttttttttt tctgacagac tcgagctagg ngnaaaaaaac 60
tacattttta cagatgcgat taatgaaaat taaagtttgc tactaatcca catctatcct 120
tgattctgtt tttgctgcta atgtgccaca atgaaattta gatgctctca tttntntaaa 180
actaagtgtt aaatcatcca ttgtaattgg tcgtagagca tcatgaaatt cctcttctgc 240
gtcttgtatg tgtggcacca aagggtgattc agngtgcata taatctctaa cntatacac 300
agaagcattt cggcataaatt cccttaagtc tgatcctgaa aatccctcag tgagtttaga 360
taattcatnt aaatcaactt catctgaaat aggttcattt tctaaaataa gctctagtat 420
cttgaatctt tgntgnctta tgggcatgcc aatatggaat gnggctggca tacnccgnaa 480
aatgcttta tttnaatttn 500

```

<210> 475

<211> 462

<212> DNA

<213> Ctenocephalides felis

<400> 475

```

ttggtccaac tgtttggcat ttgtggatat attcaaaatc agccaatgct aatttttttt 60
nggtgttaca ttggcatttg ctacagcaca gattttttta gtcactgata tcttatttgc 120
ctatatataa agagaatata cttgaagag tggcttgaaa cgaatattga aaggcaaacc 180
tgcaaaatta gctttagaat aattttatta taatgtttga attgaaatgt ntttganttt 240
aaatatgant taagttttaa ataaaagctt ttttattttt acattataat attatgccat 300
tagcctatat tgttacacag ttaaatttaa angtatttaa taaatgggtt tacaactaaa 360
caaatcacaa acacacataa atataataaa aactggatga aaatanttga atatatatat 420
aantcgtnaa gaangtcaac cttctggnat aatggagctt gt 462

```

<210> 476

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 476

```

gnttgactga cctgaaataa taaatatcat aactgcctgt gtaatttttt atttgtgtgt 60
tatacggctct ttaaataaat aaaggtttct taaaaatgcc gctaataatc atgacaggaa 120
taccagtag tggaaaaact catcgaacac tagaaataaa aaaatatttc gaggaagaaa 180
gaaagaaaac agtacatgtg gtttctgaat ttgaagccgt cacaaaatca ggttattcaa 240
aaaatgatat ttatcttgat gcccaaaaag aaaaaatcgt tcggggcatt ctaaaatctg 300
aagtttttcg attattgacg aaggataatg ttgttattct agatggagga aattatataa 360
aaggatacag atacgaatta tattgtggga gcaaagctgc acgagttcct caatgcacaa 420
tttgacatc tatatctaaa gatgatgctt ggaagttcaa ccaaaattca ccttccatat 480
caaaagaagt ttgtgagct ttgttttcg atgaagacct aatccaacaa atcgtgggga 540
tctnctttt 549

```

<210> 477

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 477

```

gatgacagta ccatcattca aaggcaatat aacagtcttc accaatagtt acttgggact 60
cggtttaaaa gctgccagac atgcagtttt tacgaaaaac aatggagact ccaaatcggt 120
gtccagccct tgtattaatc ctatcatcaa aaacaaacct tgggtgtatg gcaacgttga 180
gtacagtata agtggcactc cgctagaatc aaagaaatta gaagtagatt ggccaaatg 240
ccgcaaatta ttagcagaca ccctgttacc tctagtcgac ccaaaaccta taggtttaga 300
agtacaagat attgcagcgt tcagctatct ctttgacagg gctaccgggg ctggactgat 360
agatccatct ttgggcggcg aaataacagt tggggaattt gaaaaaactg caaaagccgt 420
ttgcaaaacc gcaaacaccg accagccctt catgtgtttc gatctaacat tcatatcggc 480
ttgctaagg acggattcgg attaaaacct gaatcgaatt aaaatactaa aaaagatcgc 540
accacaaat 549

```

<210> 478

<211> 417

<212> DNA

<213> Ctenocephalides felis

<400> 478

```

gttaagagct gtcaaattat tgtacaaata tttctaaatt aaatacgtat atataattta 60
ataaataata ttttactact atgaaaagag ccgcaaaaaa ctttctacta gaccgtctgc 120
acaaaggcgc cgtcatggcc tgcattggga tcaccgtttt gggaacactc agtcttgat 180
tccgagttta tcaatacttt actgatataa aacctgaaat acaaagaaaa caaatattgg 240
caaagaacga gctgttaaaa gaaggagcct cggacatatac attatacgag agcaatatca 300
cggttaaagga ataactccta ggatagtaga tatatttagt actgattact ccaaaaatgt 360
atgttatata atgtaaataa gacttataat ttatttcaaa aaaaaaaaaa aaaaaaa 417

```

<210> 479
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 479
 gttaaccgaa atccgaatta taaaatttat aaagtcaacg cagcaaattt tgaaatcgtc 60
 gatattgaat cgtggtacta cgatttagcc gaggcaaata aaaattctat tgtaaaccga 120
 gaatggaaac aaatgtacgg ttcattcaag acagagtttg gcttaaattc attgaacagt 180
 tcagagatgc acaggcttgt attgaatatg aaaaccaaca ataaacttgg aaaaaaatat 240
 tttgaa*aca aagttaaacg tgctgacccg gaattaaa*aa aaggctgtga taaaacctgt 300
 cttaaaaatc atttgtgcgc aatagttacc acagttgtat cagatctcat ccagtgcgaa 360
 aatatcatca aatcatcatc aagcattctt cagcatttga atatatatgt cctaggagct 420
 attgtaattt ccaattattt attattataa agtcattttt gttaagtatt tataaattag 480
 aataaatcat tatgtggaaa tatgtaacgc ttgaaaagct agacaaatca atattttaga 540
 aaaaaaaaaa 549

<210> 480
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 480
 gcacatttgt gttaagtttt aagcaggaaa gttgaacata aaataacatn tnntnntnt 60
 tttgcgtgtc tttacaatg gatgttgaaa acgtcgaagc atctggaagt gttccaaatg 120
 ttgctggaga tgcatgtggg gattctatgg tcacggatgg gaacgaaacc cctgcaagtg 180
 ccactggcgc agcaggttta gcccaagaaa gaggtaaagc taaagctaaa agaattgtac 240
 gacaaaatag tcgagaaaac gtggcctcag gagcgggtgt accacaacgt tcttggaata 300
 acagccgcag acctagaaat ggtcatggga gagggctgcc caaaaaaggt ggcgcggggg 360
 gtaaaggagt ctggggatta ccaggctcag agcttttaga agagtatgaa gatataatg 420
 atccaaactt tgatactgaa tgtataagtc acaaagatat agagttgaag gccgtattcc 480
 tgaagtttct gcagaagaat tcttgaaaaa ggctgaccgc tattcttgat ttgacatgg 540
 gatcccaag 549

<210> 481
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 481
 ggnttatatta attagaagac tggtaagttt tagaagatat gactgtagtt taacagttta 60
 tacgttttat aaatcagctt ctgaaacttt aatttcataa tgatttctgg cgattttcct 120
 gaggaccagc aaaaggagct gcagagttta gaagatgatg ttgttcaaga aattctcaaa 180
 actggcactg atctgagaca atactcgaaa caaatagaaa aagaactgaa agatgtagaa 240

```

aataaatcta tacaggatta tattaagaa agccaaaata tagctagctt gcacaatcaa 300
attggggctt gcgatgacat ccttgaaaga atggaagata tgtaaatgag ttttcagagt 360
gttttaggta atatcagttc tgaaataacg tctctacaaa aaaaatctgt ttcaatgtcc 420
attcaattat caaataggca ggctgtcgag gagatctctc acagttatcg aagatatttc 480
tgtactcaaa gtctgtaccg gaattttgga taccagtagc tgagaaagat tataactcag 540
ttcaaatac 549

```

<210> 482

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 482

```

gtgaaagaga ggctacaaaa agacttcttg cacagctacc aataagcgca caatcatata 60
gcagttctcc ttatctggat ttgtcattgt ttagctatga tgacaaatgg gtatcagtta 120
tggagagacc taaagcttgt ggggaatata ctattagatt ttatgcacgt gattctggcc 180
ttctcaagtt tcgaatatat gcaggagctg ttgctaaaac accacctgca gccactagaa 240
gattggtagc ttttacattt catcctaata aaccatttgc cattagtgtt cagaggacaa 300
attctgagta tattgtaaac tttcatgtca gacatgctag ctagttttta caaattattt 360
gcaaaaagcta aaaagggttac atgatgtaat caattagggt ggtgttgaga agatttgaag 420
gtaattttta ctcaaaacat atctttataa tgaaattgna atattaacat gcgcatatgt 480
tgtgatcaat ttaaagtggg atagatgatg tgcctttgng cagggatgna gttgattatt 540
atagatatc 549

```

<210> 483

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 483

```

aagccgcatt tgttattgag aaatatatgc taaaatatat tgtctcagaa ttaatatat 60
gtgctgagtt tgcattaata ttgaaacgtt ttattcattc tgaggcatct atataaaata 120
aataaatatg aaagcaattt tgataacatt gatagtcgcc gcggctgtgt attccgtaag 180
gcctgagggt ttcttggaag aaaacttcgt agacgatacg tggacaaata catgggttta 240
tagtgaacac cctggcaaag aattcggcaa attcgtgcac actgccggaa agttctataa 300
cgatgccgaa gcagacaaag gtttgcaaac aagtcaagat gctaggttct acgctctatc 360
tcataagttc aaacctttct caaataaaga caagacatta gttgtcaatt ttctgttaaa 420
catgaacaaa acattgactg tggaggtggg acttgaaggt gtcgattgaa gttgaatcaa 480
aaggacatgc atggtnaagt cctatgaaat atgtttggcc tgcatttggg ccaggaacta 540
aaagggtccgt 550

```

<210> 484

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 484

```

cgtgcaatta aattgtgtca aatttcaa ataccctgcc aaaagggcca cattgattat 60
ttaaagtccc tcgcactcac acgcacggca ccactatgtc tacggtcgac aaggaagaat 120
tggtgcaacg agccaaactg gcagagcagg ccgaaagata cgatgatatg gctgcggcga 180
tgaaggctgt tacggaaacc ggtgtggaat tatccaatga agaaaggaac cttttatctg 240
ttgcctataa aaatgtggtt ggggcgcggc gttcatcatg gcgtgttatc tcctccatcg 300
aacaaaaaac agaggggttc gaaagaaaac aacagatggc aaaggagtat cgggaaaaag 360
ttgaaaagga acttcgtgaa atttgttacg acgtactggg ccttcttgac aagtaccta 420
ttcctaaagc tagtaatgcc gaaagtaagg tttctatctt aagatgaagg gagatactac 480
aggtatctag ctgaagtagc aacaggagaa acccgtagan cgcgtagatg atcacagaag 540
ctatcaagat                                     550

```

<210> 485

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 485

```

gtttcgggcg ccatgaagct aattgaagag aaaactgacc gcgtccacgt cctgaaccag 60
gcgtcggtgg acacctggag cgtggccaga gagattgagg cagctagcac ggtagctgat 120
gaagaagatg cattttatgt gtgtgatata ggggatatcg ttaagaagta tcaattgtgg 180
aaggagcata tgccgagagt gcgaccattt tatgccgtga aatgcaatga cagtccgatt 240
gtattggacg tactggccgc actcggaacc gggttcgatt gtgcgtccaa ggttgaaatt 300
aataaggtgc tgccaatggg tgtcaaacca gaggacatcg tgtttgcaaa cccttccaag 360
ccggcgagtc acatcaggca tgctgctoga cgggggtggc gaagatgacc ttgacaacg 420
aatacgaact tcataagatc aagagatttt acccaaatgc cagattgatt attcgcatc 480
gtgtgattct gaaattgcc aatgccactcg gaatgaaatt ggctgcgatg cattcaatga 540
accccgcgct                                     550

```

<210> 486

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 486

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atcgcgaaata aataaatgtg gcgatacatt aaatcttcat tattagtga caaggaactg 60
atttaatatg gaagataagc ctgtgaagcc atgtaaagag aagcgaagga acaatgagaa 120
gcgtaaggaa aaatcccgga atgctgcacg ataccgcaga tcacgggaga ccgagatttt 180
cactgagctg gcggaatggt tgccctcttc taaagaggac acggaccatc ttgacaagac 240
ctcaataatg cgactgacaa tctcgtattt gcgaatccga gctgccgtac ctcaaattgt 300
tccagaagag gatatttgc tcaacctcatt atcgaataag gacaatgaaa acttcttatt 360
acaggcgctt ggaggatttt tgatcatgat ctacactgaa aacgatatcg tatacgtatc 420
aagcaatgac aacgaatata ttggaattac tcagatcgat ttaatgggtc aaagatgttc 480
gactcagtc tcttctgtgat cataatgaat taaagaacct ttccccaact caaccacaaa 540
agatgntac                                     549

```

<210> 487
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 487
 caccacatcc agttgaatta ttttaacatt tactttttgc caacatatgt caacgcgttc 60
 tttaatctgt gtttgaagat caagtgatat aatttagaat aaagtagttt caattatagt 120
 atgtccacaa tgaatccaga atatgattac ttgtttaaac tgctcttgat tggatgattca 180
 ggtgttgga aatcttgtct actttttacgg ttgacggatg atacttatac agaaagttat 240
 ataagcacaa ttggtgtaga ttttaaaatt agaactatcg acttagatgg aaaaaccata 300
 aaattacaaa tttgggatac agcagggtcaa gaacgggttc gaactataac ttcattcatat 360
 tccgtggggc acatggaatc attgttgtat atgattgcac agatcaagag tctttcggaa 420
 atgttaagca atggctcgaa gaaattgatc gctatgcttg tgatagtgn ataaatactt 480
 gaggaacca agagtgatta actccnaaaa agttgtagac tcactntgta agaattnctg 540
 ccagntaga 549

<210> 488
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 488
 cagcgatcag atttaccaga cacatctcat tggcaaagtt caatttccaa agatgaagct 60
 gcntttgaaa tagactactg caatcctcaa tcaagcaatc aacattcgaa gncaactaaa 120
 gataataaca atgacggtag tactgntcca gacgaagatt ttttttcgct cattatgaaa 180
 atacaaagtg gaaggatgga tgaccagcga gcaagtataa atataaaacg agtaatatag 240
 aactctactt taataattgt aataatattg tatatggatt attagattac ttttaatact 300
 agaataattc caatttttta atatcatttt ttgtggatta catacataga atagtctggc 360
 tatcgattgg tactttgact atgaattgtt gtacctttga accgcaacaa tttctaatat 420
 aaaatgagta gaaggtttat tagcgacata atagtacat tgctataata tagcatttaa 480
 atcaaacaaa ttaaaaatgt gattttatta ataggtacta tcataaagtc acaaaagccc 540
 ttccggtac 549

<210> 489
 <211> 547
 <212> DNA
 <213> Ctenocephalides felis

<400> 489
 tgacaaaggc aaaaatgggt cgctcgaccgg ccagatgtta tcgctattgc aaaaacaagc 60
 cctaccccaa atctcgggtc tgctgtgggt tgccagacgc taaaattcgt atcttcgatt 120
 tgggtaagaa gaaggcaggc gtagaagatt ttccactatg tgtgcatctt gtatctgatg 180
 aatatgaaca attgagttct gaggcactgg aagcaggacg tatttgctgt aacaaatacc 240

```

tcgttaagaa ttgtggtaaa gatcaattcc acatcagaat gaggctgcat cctttccatg 300
ttatccgcat caataaaatg ttatcgtgtg ccggagctga taggctccaa actggaatgc 360
gtggtgcttt tggaaaacca caaggtactg ttgctagagt tcacatcggc caaccaatca 420
tgtctgttcg ttccagtgc agatacaagg ccgctgttgt aaagctctgc gtcgtgctaa 480
gttcaagtcc tgcagacaaa gactatgttt caagaatggg attactaatt tgacctgatg 540
ttatana 547

```

<210> 490

<211> 353

<212> DNA

<213> *Ctenocephalides felis*

<400> 490

```

tgataaattg cctgcaagaa tgagtttcag ggaacgaaaa gaatcggcca aatgcatgca 60
aaaggttgca ttaaataatc aactagcagc agccagagtt tcaactgatg ttggcattaa 120
agtaggagaa gccctcagga atgtagtggg acttcgttta gatttgggaa aatgttcttc 180
agacaatttg aataaatggg aatccagatt ggaagaaatt aatgatgttg tggaaaattg 240
catcgtgtga aattgtaact tgaaataatt tttcttaact attagtttta tagatgaaca 300
aatacataat ctaataaacc agcaagtga aaaaaaaaaa aaaaaaaaaa aaa 353

```

<210> 491

<211> 373

<212> DNA

<213> *Ctenocephalides felis*

<400> 491

```

ntgnttccat ccatattcat caccxaaatc acgttcata tcactatatt cctcatcttt 60
actatanctt gcataatctt tgcgtantgt tctcancana atcatagaca caagtcctac 120
taaaantagt accancatan anctgttana tangctgaac caatgtatcc tatgttgaaa 180
gaagttanga tccaantact tgtcaaacct attttcaanc ttgacattgc ngggtttcca 240
tgtcacttcn naagtnaann tcanaacngc tccagtttta nngtagttct ttcttacnan 300
atganacant cacatctacn anttgcgtgn cantataton annnncaaatt ttcttgtgtg 360
tgtagacnta gtt 373

```

<210> 492

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 492

```

attgaaaaag ttaaaattcc aagtaaagat gttgacaaaa taattttctg cctaaatttt 60
tataaagata tgagatttaa gaacaattga aaatttacta tatatacata ttacaaaaat 120
tcaaataatt gttattcttt gtcaaatacg ttgttctttt tcatgattac gatcattgtc 180
agctgggtca tgtttcacat gtgatgtgta tatatcatat cccaaggata ttgtattatc 240
atataacact ctaaacctat gaggtaatat ataaaagttt atgatttggg ctggcgccca 300

```

```

aactacccat tcagcagcgt aaagcctcca agcctttttc ttaatttcct ctattaattc 360
atctttacta gttttttcta gtatagctaa tgtaataaag aacatagaaa tgcattattg 420
tgagcataca atttgatcta tcacaacttt tttcatgact attcctattg tgcgtcctgg 480
caatcgttta tctagata 498

```

<210> 493

<211> 308

<212> DNA

<213> *Ctenocephalides felis*

<400> 493

```

tggaacagt taatttaaaa taacaaaatg aaaggaacat tattaatatt atcatgtcct 60
gtgatcatga taagtgccga atatgctgac gtagatgtgt gccaagattt ggacgatgga 120
acttttcttg ctgattcaaa caattgccaa aatttcttca tttgtgatgg aggccgagct 180
tggaatatgt attgtccagg atcactttta tggaatgac acgaaggaac atgtgattac 240
gcacaaaatg tagaatgtta ccaaccagaa taaaacattt taatatcaaa aaaaaaaaaa 300
aaaaaaaaa 308

```

<210> 494

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 494

```

ctattacaac taggttaatt tgtagtaag ttttggtata actgttattg atattaaata 60
tgtattattt ttatatatgt aaacgaatta taatttttgc tctttgatta cttctactct 120
ggtgcattaa cttttattca actagattaa attttttggt tacttcctat gcctcacatc 180
agtgtccttc atgtgatcag gagtattttt tcatcttggg ctttgatctg tatcactctc 240
ctccatttca gctttgttgc gtttcttttc ataaatgaga ataacgcgc ataaaattat 300
tacttcagca cagatcccaa aaatggccac aaagcagcta atttatcttg aactcgaacc 360
aaggntgtag aattaacagt aattccaatg ccttgattag tagcaatata tgtatattct 420
cctcgatcgc ttttccagcc aaatcaattt ccaagcagaa tttggttatt gcatgatcaa 480
caattgatcg acgntgatc 500

```

<210> 495

<211> 244

<212> DNA

<213> *Ctenocephalides felis*

<400> 495

```

gatcggttgc aatttgtcat tgcaccaagc ataaattgat gggtcgggtg cataggttat 60
aaaagaattg ggatttgtgc atttcatgac ggtgcaatca gcttctgacg atttcttttt 120
acacatattt ttagaatgat catatacata gttaggtggg cattcgaaaa cctgaccttt 180
accatctttg cagaataagt atcttgtgca gtctttcgga tctggctgat atcctacaac 240
cgcg 244

```

<210> 496
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 496
 ccaatatcga agtgcgtggt cggccgccac gctcaatgga gatccgttta gatgtgtttg 60
 ccaataacaa acgcatttat ttcgacagac cttctctcaa gtttcaacac ttccaagggtg 120
 ttactgtata tacaccaaca tacatcttga atcagtcctga agttgtttata atgtttgctt 180
 ccggagccgg agtagaagtt gtagaaaatc aaggatttat gactgctaga gtttatttac 240
 catggacatt tattaataaa actgctggtc tactcggaaa ttggagttgg gatattggcag 300
 acgactttgt caaacctgat ggaacttttg tgcctgttaa tctcaacagt tttgaatctg 360
 ttcataaaga tttcgcacgt cactggatgc tggcggatcg tgnaaatgaa cacctcggag 420
 cngnactctt nacttcngga atttggctgc ncagccagtt attatgcaa ttcctcattt 480
 taccaaactg ggttaaagaa 500

<210> 497
 <211> 411
 <212> DNA
 <213> Ctenocephalides felis

<400> 497
 ttgtcattnt tgttctactt tgaagttgtg cgctggacaa gaaaccccaa ttacaacaat 60
 caattgtaga gactcaaatt ccgatgctcc attttgtgta gatgatatgt gctcatcaaa 120
 acctggggaa aactgtaaga cggcagaaac tacatgcgcg gntgnaggat atcagccaga 180
 atccgaaaaga ctgcacaaga tacttattct gcaaagatgg taaaggtcag gttttcgaat 240
 gcccacctaa ctatgtatat gatcattcta aaaatatgtg taaaaagaaa tcgcagaagc 300
 tgattgcacc gtcatgaaat gcacaaatcc aattctttta tacctatgca ccggcccatc 360
 aatttatgct tgggtgcaatg gcaaaatgga ccgatcggc ccctgaatgg g 411

<210> 498
 <211> 498
 <212> DNA
 <213> Ctenocephalides felis

<400> 498
 ccccatatatt ctttgctcgt ttagttgngc aacagcagca tcttttaag aatacaaatg 60
 gggcatttcc atttcagttt ttgctaggca taatgctttt tcaaacattt caattgcacg 120
 ctcaagattc cctcgttgaa cctcaatagt tctaaagtt tcatagccaa attcacattt 180
 gggatcaagt gaaatagctt cattaatcaa ttgaactgca gtatcaacat cacctgtcca 240
 ttgcaacctt agtaatcctt tatgaacata aacaatagca ttattaggct caatttcaat 300
 ggcttttagag aaatatgaat ctgctttgga gtattgtctt tgatcacaaa gcacttgtgc 360
 atataaagna tagcactcta tacagagagg aaatttttta atggcattgn caaaggccca 420
 attatttctt ttgccttatt catgtcntaa cagcaaaagc atatcgatgg tcgtatatat 480

tttttgaca taagccat

498

<210> 499

<211> 598

<212> DNA

<213> Ctenocephalides felis

<400> 499

tccaatataa agaaactctg tcacattgcc atagaaagga ttcaatacaa aatttatgcc 60
 aacttataac tggagatgcc ttactctatt ctatgtttcn agaanaatca gttcccgtga 120
 cttgcccttt gaaaggacct ttcacattca catataatan gggacatggc gaatgtatga 180
 atccagtatc gaacattgaa agttgcactg aagacagtcg acttatTTTA acataccagg 240
 catgtccgga tgttcatgga actgaaagtg cantggaaga actggagtgt ctagcaacat 300
 ggaatgaagg taatgctcga tacctgggtg gtaaaatgaa tcatcgacat gccataacca 360
 gtgaagatcg atacagatgc tttgtttatg agaaaataac tgggaattgga gataaagtaa 420
 tggatacaaa attgcacaat catgagatgc tacttgcaat ggattgttta gtgctacaga 480
 aggtcacgga caatgacttt aanacaagct gctattcctg agcgggtgctg tttccgaatt 540
 gggtanctgc tggaccatca cactggcaaa cagttgataa tcacaantta ctggttca 598

<210> 500

<211> 462

<212> DNA

<213> Ctenocephalides felis

<400> 500

ccaaatattg cagttcctac acgaacaata ttgctgcca tttcaatcgc ttgttcaaag 60
 tcatcagaca ttcccataga taaattaact tcttttggtt ctaaatttaa ttccttgc 120
 aattgtcac gacattgttt taaagtgaga aaatctgggt tgggtcctaa acttgatca 180
 tagccatatt ttccaatagt cattaacca tcaacaagta gggttgggca atttctttc 240
 acatatttgt atanagttgt tgcttcattt ggggaacac catgtttttc tatttcacca 300
 cttgtantta tttgaatcat aactcntaat ttatcacat gaattttatt agctgaatct 360
 aattttgacc aancattctg cacactgtcg ggntaattta aatgagtga ttgtttcnac 420
 cacnatatat cncaggtatg ttaacacctt aanaatttta nt 462

<210> 501

<211> 216

<212> DNA

<213> Ctenocephalides felis

<400> 501

agactgaccc tgggccagg cgtttgctta anttgtagc ttaaagacga ccaaccacag 60
 tgnacgaatg atgaaataag cccatccaca actgctcaa gttcaaact gaatgaaagc 120
 aatgaaacc taccgaatc acaacctta agccaaaata cttcaacaaa tactccatta 180
 gaaacatcaa atacctcact agcagaaagc agcagt 216

<210> 502
 <211> 489
 <212> DNA
 <213> Ctenocephalides felis

<400> 502
 ttgttgatt ccatgccac tgaatccagt tgctatatat gtattattgt gatatggatg 60
 caatcctata atgccatttt catcaaaggt attgtattcg taataaccag cccaagcact 120
 ttttaacttta attgcttcaa aacatggaac acgatgtgct aaatgtggcc aaacgttttg 180
 ttcaaaataa tccatatcta catctaagtt atcgactggc gggtctttgt caggatctgg 240
 tgaacgacca cagatatatc tgccacctaa tccatctctt ctaaaatatg tatttggttg 300
 atcgattgtc agaggtgtat ttaaacctgg aggcgaatga tgttgacact caaagctata 360
 cacatatctt tccacaggta aaggaattga cagcaatcct tctccagtac caatttttagc 420
 taatctggca acatgaccag actgangtcc tgcagctatg acacatattg caaactttat 480
 tgggtataa 489

<210> 503
 <211> 425
 <212> DNA
 <213> Ctenocephalides felis

<400> 503
 gatcggttgc aatttgtcat tgcaccaagc ataaattgat gggcccggtg catagggttat 60
 aaaagaattg ggatttgtgc atttcatgac ggtgcaatca gcttctgacg atttcttttt 120
 acacatattt ttagaatgat catatacata gttaggtggg cattcgaaaa cctgaccttt 180
 accatctttg cagaataagt atcttgggtgc agtctttcgg atctgggctg atatcctaca 240
 accgcgcatg tagtttctgc cgtcttacag ttttccaaa ggttttgatg accacataatc 300
 atctacacaa aatggancat cggaatttga gtctctgcan ttgatngttg taattgggggt 360
 ttcttgtcaa gcgcacanct tcaanntaga ccantcgtgn caaangttcc caactgctta 420
 ttatt 425

<210> 504
 <211> 203
 <212> DNA
 <213> Ctenocephalides felis

<400> 504
 gaattgtttg agaattgctc agtggttaatc ctttgagatg tggatcgaag gattgacaaa 60
 agtctctgaa ttctgtcagt gtggggccta atgttaagtc ggagtgcgtg caatttataa 120
 gaagacttag aattgcttgg gttgcacatg cattgttgat cacctgtttt gcaaagaata 180
 ttttatcgag tctaccatca tgt 203

<210> 505
 <211> 317

<212> DNA

<213> Ctenocephalides felis

<400> 505

```

attggagaat ttggattttt cttaacacct atgataggca aacaaaaagt agcttttaat 60
tcaggatggg taacatgtgc ttttttgaac ctaagagcca taggtctgat aaatctttcg 120
aattttggag gtttacgtgt aaagccttca ccaacaaaag taacttttgt aaccattctc 180
ttccacgctt tccttctgga ctttcctgat gataaaactt tgaatacttc agcatctgcc 240
tgagctctga cttttggata ngcacatccc attttccggc cttctcttta cgtttctgtt 300
tgatcatatt agagagt                                     317

```

<210> 506

<211> 518

<212> DNA

<213> Ctenocephalides felis

<400> 506

```

ctctaanaat cattgacgct ttttcntttc tttcactgcc tttgttttan atggttgtcc 60
tcgggttcana aaagacgtaa ngacttctga catttctggc atatcagaca tctttgtgaa 120
actgctgagt tgctccattt cctttttagt ttcaggatca ttcattcattt tcggtaaaan 180
cataattaat aataatggca anaccatcat taatatcata tgattgaata ggaaatcagt 240
gattttccat tgttccctta cttgaaaata tctgaatttt cctaattgtt ttaattctta 300
agggtatggc acttgatga cttgagatgt ttgtaagtga ttcactttgc gtgctcngaa 360
tttcccttta nagttaattt ctactctaac aggtcctaac atataanttg ngttaactgc 420
atccaanacg tangatccag atgggacatt anttataaca aangtgccgt ctctttcaaa 480
aaacctctgt atnanccccc gttcaanant attttggt                                     518

```

<210> 507

<211> 373

<212> DNA

<213> Ctenocephalides felis

<400> 507

```

ttttttanct aantgtatgt cagaaaatgt cactaaagca acacctgtga tgcttaaaca 60
aactgcaatt aatttgata tagtaaactc atctccgata ttacaaggga ataaagcagc 120
taaaacaagt gtgaataaac ttgacgttga agataaaact gtaaccgtan cagcttctgt 180
ttgtgataat gccagctgaa atgtgtaatt agcagcaaac cacaataagc agaataacaa 240
agcaattttt gctattcttt gtgtgggcaa acgatttgcg gcccgccgtg cagcctcgct 300
tgcccttaaa cttgcgtggg aagataatct tgccaataat gcttctgttg ctcnattatc 360
acgcatttgc cgt                                     373

```

<210> 508

<211> 430

<212> DNA

<213> Ctenocephalides felis

<400> 508

```

gtattcaatg gtatgaattg cttggtgant gaaaatttca ctcattgggtt cttcttcgtg 60
ctctccatga gctgcttttg gcggtgccnt tggcgctctt gccataccgt tttcttggct 120
ggagacaacg tctgaagtca tttccattcc ttggttcaaa tcaccatttg atttagcana 180
atgaggaaact tcatctttat ttttcttggg tgccatcana tatnatgggt tgcccaanga 240
gcatgagcgg natakagcag agcccaatta acacaaatat ttttgaatt tgctgttggtc 300
cttcanacat aaattcatcn caatgttctg ctggngatcc ttgcttgaat aacatcatgt 360
tnatgaatca gnatcaaaac tgatggtgng cagcatgggt canatctgat gtccgtacta 420
tttgcagagt                                     430

```

<210> 509

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 509

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acactgtcag taatattgat aaaagtgggt agcaagacgg aaataatgtg cagcctactg 60
acattgcaga tgacttaaac tgtgttgatg tggatagtgt tgacactgaa acttactcga 120
aatgcgacaa aaacattaaa cttattgata aaccactcaa gaagcaaatt gtagttttat 180
cagaaaatga ttttgatgac ggctgtocaa aatcgaatac taataataat aacgacccca 240
aagaaatttc ttctcatatt tgctaccttc aagatagcga ttttaataacc agatcagatt 300
taagtccgat catgactccg aaacatattt caacaccaga aataccaaag tctaacgcaa 360
ataattatgc gacttttagat cagagtttcc atttaggtca aaacgttcaa aatgcgcaaa 420
ttaacaaaaa taaatacatt tatatcgatc ctaataaaat tgaacaagat ttaaacagca 480
atttaaataa tttaaaca                                     498

```

<210> 510

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 510

```

tttttttttt tttttttttt ttttttttgt ttttagatggt tgnccctcggg tcaaaannga 60
cgtaatgact tctgacattt ctggcatatc agacatcttt gngaagctgc tgagttgctc 120
catttccttt ttagtttcag gatcattcat cattttcggg aaaaccatga ttaataataa 180
tggcaacacc atcattaaaa tcataggatt gaataggaaa tcagnaattt tccattgggtc 240
ccttacttga aaatatctga attttcctaa tgnctttaat cttaaagggt atggcacttg 300
tatgacttga gatgtttgta tgtgattcac tttgcgtgct ctgaattttc ctttagagnt 360
aatttctact ctaacaggct catacatata atttgagtta actgcttcca atacgtaaga 420
tccagatgga acattactta taacaaaggn gccgtcttct ttnaaaaacc ctctatataa 480
gcccccggtc accaatattt                                     500

```

<210> 511

<211> 208

<212> DNA

<213> Ctenocephalides felis

<400> 511

```

tttttttttt tttttttttt tcgctttata aacattaata tttttgaaaa atgatattta 60
cataaaatga tttctctcaa tgaaatttaa aaatttctta atcgttttta aaaaataaat 120
ttatgaatcc catttcttat actccattcc atctggngga cgaacctcaa ctttctcttt 180
gccacactcg ttccaatttg ngctaagt 208

```

<210> 512

<211> 355

<212> DNA

<213> Ctenocephalides felis

<400> 512

```

tcaatatggt tcaccttaat aacattatct caatatcact ttatgttcta tttaagcagg 60
cctttaccaa atatttttagc tctgccactt gtcttattag cagttaacca ttggttgaat 120
agtaaagaaa aatattttat cattttattcg gcatctgcaa tattaatatt tcgggctgag 180
ttagctcttc tactgggatt atttctgcta tatgatctta ttcaaggaag agttcagatt 240
ttaagattaa ttaaaatatg cttgccaaca gcagctatct taatcacatt gactgtatta 300
gttgattcat tattctgggg acgactagtg tggccggaag cagaagtttt gtggt 355

```

<210> 513

<211> 518

<212> DNA

<213> Ctenocephalides felis

<400> 513

```

aatttttgga atactttgaa atatattctt aaatttaaatt ctttaacata tacataccac 60
tttattaatg gagttttatt tggcatgcta attcttccat taccttggtg attcattatg 120
tgtagattg gcgcctgtat ttattaggac gaagaaaatt gaacatgcca ttccttctat 180
tattttttat ggcattttggt gtggtattgt cactaccatt tgggtgatct gaagtttctc 240
ttgtgtcaga caaatgcaac aaagtcgcac gacctccatc taaacgacta ggcccccaac 300
ctgaagtgta tgcatattca ccagtatgcc ttcgcagact gtcattagca tgtgatccat 360
ttgctgaaag gctgtttggt tgagacctat gccctgcac catttcatca tgagaaattg 420
tattccgatg ataatcaggg tttgttgatg ttctaattgg cacaggtgga ggcggtggtc 480
taacgctgac agtgacagta tttgaatact ggggtggt 518

```

<210> 514

<211> 382

<212> DNA

<213> Ctenocephalides felis

<400> 514

```

ttccggattt ttggtcaata ctttagctag acgttctgca ggaatgccgt atcttctcaa 60

```

```

atttgcacn cttaaaacta cgacaattgc ctcatcacia tcttcttttag ccagggtatc 120
aatagctata tttgttgcgt ctaatgtatg atccccagac caacaaaatt gagcatgtgc 180
gtgcatcatt tttattgttt ccaatctagc tttttcattt ttaggtgggc ttgaatgatt 240
aacaaattct agagcatctg cttcacogct gtgaccaa atatacact ggaatctatc 300
ttcgtgaccc tcaaaacttt ccatcagaag aactactgct tctaattgct atctaagcgt 360
ccatcatatc cattaaatct gt 382

```

<210> 515

<211> 489

<212> DNA

<213> *Ctenocephalides felis*

<400> 515

```

tcaaattaga ggagggaac cggcaacagc ttgaagagaa cacaattcct tgntgcctct 60
aaagtgcagt caacttttagc tacgttaatg ntagttgaac cgacaacctt tttagctaag 120
tcatcccaag taggtgctaa ccttttacia tgtccacacc atgggtgcaaa aaacttgaca 180
aaagtcacac cctttgaaat gccttggtca aagtttgatc ccacaagatt aaagacacct 240
tcttcttcat tagtgnctgg aatgcganta tcatctctat cttcatcatc aatttgatga 300
gcacatggtt tcttctcaac ataagccttt aattcttctg gattcctttg ccagagtatt 360
tttccacctt tttccatctt caatccataa taaagtagga taacctttta cttcaaattg 420
tgtgcaaatc gggcgngngt gagtgcagtc aattttagta atgcttacag agtcttcatg 480
ttcaaaagt 489

```

<210> 516

<211> 309

<212> DNA

<213> *Ctenocephalides felis*

<400> 516

```

tttttttttt tttttttttt tttttttttt ttaatgattt aattaattta ttntaagcca 60
ataattgata ttaattatgc attaatcatt gnatttatac tttcctagaa aactatacat 120
cacatgttga aacaaattaa ggttcatggc ttctcgctt tccttagcgc ttgttttaaa 180
tttgatccat tctttccgaa tcttggtact ntttggctcc catttntcat tgggagtga 240
cacgtttttc aatgtatcat taatggaatg ttttctattt ttcaaata tccaaattgc 300
ccaaagngg 309

```

<210> 517

<211> 215

<212> DNA

<213> *Ctenocephalides felis*

<400> 517

```

atctacaaca gcaccgataa cggcaacaac tttnccttgg gcacctgctg ctgctttggc 60
agcataactc ctgctgttcg ataaaatcga tgcgatttta cccgattctg ttttgtcag 120
ggttcgcaaa gtggaattga ttacggagtg catcttataa taaaatgtat agccagttga 180

```

gttgaattaa attgatctca cctgtaagct actgt

215

<210> 518

<211> 275

<212> DNA

<213> *Ctenocephalides felis*

<400> 518

agcaaaacgt ttccataact aggatatacct acttgaaagt gatggctatt gttggtactt 60
attgcatttg gtccaaaaat ctcaggctta taatattggc ccacagaaga atatacctggc 120
ctgtactgag aaaatgcgta aggtgggtgga tggtaatcac agttcgccca ttggacaatc 180
gagatggcca ccaaaaatat tacagctttc atttttagtca cttggtgaaa tatcacgaat 240
tgaaatattt caaccttcgc aaaaggagct tgtga 275

<210> 519

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 519

agtattagca tcagcccgga caacaacgca gtaggatgtt agcaacatta ttcaaggatg 60
aaagggtgtca acatctacca gcatattcaa ttttgagaa aatgtattta gatcaaataa 120
ttcgagatc tgacttgacg gagtttgaag cgcttttaca gcctcatcaa aaggcatcta 180
ctntggatgg gtcatnaatt ctggatcgng ctgngtttg acataatttg ntttctggca 240
gcaaattgta taataatata acttttgaag aggtaggatc tttanttgga atnttagntn 300
gcaaagnngn naaaattncc gccaatgnta ttaaaagggn gaatgnatgg ggcntnaatn 360
anattgntna cattggcctt gggcgcgaa cccttaggcg aattttngga tattcantac 420
actgggggcg gttgngntnt gttttagggg ccaattcnct tatngngngn gtttaaatac 480
tngcgggggt tacaannn 498

<210> 520

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 520

atattttgta tagtttcttt tgttgaatac ttcataata tattaatata atttaggttt 60
cctctcgcaa gttcctgtgt cgcagctttg agtagcttgg ttaaatactg ttccaatcgg 120
acattgatca ggaactggct ctcccttagg acgtaaacac gtgaagaact tccggcatgt 180
tgcgctcgctt ttgaaagcaa attttccacg tgctcggcat tgcccacac aggtttcgct 240
ccttggggaa aactcggcgg gttcttcgca ttgcaatacg gttcctcttc cgccataca 300
tacgacgtac aatgatttat caccaatgta cggaagcacc ttaggtgtgt caggacatgt 360
aactgtatag cattttgtgc ccagagccat aggtccgcaa ttatgacgta acggatcata 420
tgcaaaattt gcggggcaat aatattgggt tcctatacta ttttcgctac aataataata 480
gctttgacaa tcatttat 498

<210> 521

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 521

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ataacaatan tttgagacag caaactgaat cctgtatnga ttttctttgt ccttggtgca 60
gtctgaattg cggattatta tattcgctac tgaaacattt gaaactgtgc catgctagat 120
ttacctttac atatgtgcc aacacacaat gtgctagaat agatgtagct ataaacgagt 180
tgtatgatgg ttcttatgtt ggggcacctc aagatttgct aggcccttct ggatttgcac 240
tttcagggaa tggaccgact cgaagaacta ttgttacaca tatattagtt tgccgaccaa 300
gaagaagtaa acccagttta tcagaattct tggaattgga tgaaaatgaa tgcgacagcc 360
aaagacctta cattacaggt cacaatcgct gtatcatcat acaataacat gcctaccgat 420
tcagctaaag aactagatgt tgattcagaa ngagaaagt atcctttgtg gttaagnaaa 480
agacaatgtg atgatagacg                                     500

```

<210> 522

<211> 312

<212> DNA

<213> Ctenocephalides felis

<400> 522

```

tngaaaactt ttttagcccc ncaannngag cggncgccgg gcagggacca ggatattcat 60
ccatagcagc tttcaagtat ttttcaagat ctttttcaaa tgggtgtattt tcaataatag 120
gcacacacaa ttcttcatca tatcttaaat ttcttttttag tgaatagcta taaataccct 180
ttatcatttc taaatgagtg catttaaaaa cttttcagga cattttaatg taactaaaac 240
tgcagcagaa gaatgtgtat gtattacagc acccgcata tggtttctgt atgcaagcat 300
aaataatggt gt                                     312

```

<210> 523

<211> 258

<212> DNA

<213> Ctenocephalides felis

<400> 523

```

atgaacgtat atttatattga gtggcaataa tttaattcat gcaaatcata atgataaatt 60
tgtaattggt tagtttcaag aaattgtaat attgtaattc atgtaaataa ttgattgcat 120
tccaaaatgt ttttattttt gtttttattt taatagtttt atttaaaatg ttgttggtgt 180
attatatatt cagtatttta aaaaataata aatttactcc cgttgctaaa aaaaaaaaaa 240
aaaaaaaaaa aaaaaaaaaa                                     258

```

<210> 524

<211> 204

<212> DNA

<213> Ctenocephalides felis

<400> 524

```

cagttaatga tctacaactt gttcaaaaag ccttaactga tggatcgaac gcgtgtggaa 60
gttcaatcga atccttccta aatgttattg aaactgaaga agcacctcca acctttaata 120
gaactaacia attcactcaa ggtttccaaa acttgataga tgcctacgga gttgctagtt 180
acagagaagt aaatccagct ctgt                                     204

```

<210> 525

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 525

```

tttttttttt ttttttttaa ttgataaatt ttatttaaaa cttgcaaaaa ttatttaaac 60
aatttacgca tagcacattt cgctcgtgca aatctcttcc tcgcattcca gacaagtttc 120
cttatcgcat ttgtagggtg cgggtgcagcc tctcttcact ttatctccgt caatatctaa 180
gtagcatttg cccatgcatt tggctctcgt ctcgactttt tcagggtcgt caaggcaatt 240
ttcatcattt tcatcacaag aaacacattc gtgttttttg gcatcaccat tgcattcggt 300
tttgtcacaa gttgggcaac gttctgggtt ttctcgcac atttttttca gattctgggt 360
cttgaacagg ttgctgggtg accctaattt tatggcatca ccttgtgcat ttaaaatact 420
caaacaagta tcttgnggct tgagacaaac ttccttgga tcatctttag cgttgcaaac 480
cctgcgattc ttgggaaaac                                     500

```

<210> 526

<211> 259

<212> DNA

<213> Ctenocephalides felis

<400> 526

```

cagcagctcc agcggctgca gcggctccag cagccgcaat tccgccagcg gcgttggttc 60
caccaccggc gcccatgct ccaccacctg ctccgctacc agtcctccc gctccagcgc 120
ctgctccgcc agcatttctc gcagaacggg cgagagtatc tccagccgcc tgttggaac 180
tgaacgattg agcattactt ccgccatata ctgaagaacc atatgcggat cctactggag 240
gcacatatgc ggtgttagt                                     259

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<210> 527

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 527

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tgancgccc cagaaaaccg ttcgacgcga taatctgtta actggcgggt aattttacgg 60
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agttgaacat acaaggcgggt cttctaatat ttctcatatt tcgtttggag aaggttcctt 180
tatatcatct acaacttaca ataagcatag gggcccttgc ccagctgctt tattggaaac 240
taataaagca ccatttaaata atacacgtca agtgaaggcg cataaatttt atgtgcctaa 300
agttgtcacg gaaaaatagg aagcctttaa aatatcattc agaatttatt tacttatcaa 360
tgtcttccat tactgtatat acttatatat atatatatat atatatatat atatatatat 420
atatatatat atatatatnn natanaggtn acaaatatnn cgcnnatnng agagngcgcg 480
cgcnnatatt gtntcntacn cnnatatntt gngntatana ganntntata tatntggcac 540
nttatatgc

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<210> 528

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 528

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agataattgt aaccaggttt ttgatgaatc attcgaatac ataatttctc aaggagaatt 60
gtcgacgacg caattggaag tgacggtagc tacgcagaaa ggatttttat cgggaggtag 120
tcctgtgacg ggtcaagtga ttttagatct gaacgattac gatttatctc aagcttcaac 180
ccattggctg gatctatgcc cagaatttaa gtcataaatg tggatcattg ctttcgaatt 240
tcaatcaaaa catgcgtatg ctattaaatt aaatgtgtaa ttctaccttt aatttttgct 300
cctacagttt aaatttacgt ttgttatatt taggtataaa tatacgcttt attttggtat 360
tttataaatt atcaatattt aataatgctt ttatattaca aataatactt atgtgttgca 420
caaatttggt atatagatgt atatactgta ctaatattta ttttttcaac ataaatttct 480
tttgcattgt ccttacattc tagatattca attatcttaa taagtcttaa tcttaaactt 540
attatgcgc

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<210> 529

<211> 441

<212> DNA

<213> *Ctenocephalides felis*

<400> 529

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caatttggtg gaagacctca aactcaacaa ccaggaccac tcagagcgag tgcaatgcaa 120
tcaaaagcac tcctgcaagt tccattctca cctgcaaaca gttgtccaaa ttgtggtgtc 180
ggcttcgtca ctgacaatta ctctgctgc gcggtctgcc taggagcatg ctgctttcct 240
ctgggacttc tgtgctgctg ggaatgaagg agagatcctg cgtcaactgt ggagcagctt 300
ttaactagga tatagagaaa attatgattt aatgtctttg taactgtcat ttttattact 360
tgatttttaa tattagatca gatgtttcat tttatgaaat acaaaaaata tatattaaga 420
agaaaaaaaa aaaaaaaaaa a

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<210> 530

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 530

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caaaatztat tgtacgtttt agaatagtat ataaaattca tgtgtccata aaatattata 120
aataagtaaa tttccaagtt ttcacacaaa ttattgagta agccgaagcc tctttaatgc 180
gccattgcgt ttaattata gtgttttaaa cagcaaaaat cttgattcta catcattaaa 240
atgagcttca acgataaaca gtcgaattca ttcccaaaag atgaatgtgc aaatcgatta 300
gaaggattgc atgtacagag atctgacatg aataaattga taatgaatta tcttgcaca 360
gaaggcttta aagaggccgc tgaaaagtgc caaatagagg ccggtgtagg tacttcgatg 420
gagttaaatt ctttagacga tagaatatta ataagggatg catacagtct ggacgtatca 480
agaagctcag tattagtaat cagcttatnc cgagttgtgg atacgcagna tcttattcat 540
tgcacactc                                     549

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<210> 531

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 531

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tattcattta taaataaaga aatatgtctt tgccagagcc acttcaaaag ttgttcagcc 60
acatcgacca gaataagaaa aggtacattg atgtattatc tgaagctgta gcaatcaaat 120
cagtgtcggc atgggcagac agtcgacaag aagttgttaa aatggttaaa tgggctgaac 180
aacgattgaa ggctctcggc gcaaccacag aattagcaga tgttggaata caaactcttc 240
cagacggcag agttattgac ttacctccag tattgtctgg tcaattggga aatgatccta 300
aaaaacatat ggtatgtttg tatggacatt tagatgttca gccagctctg aaagaagatg 360
gttgggatac tgaaccattt gtattgactg agaaagatgg aaaattattt ggtagaggag 420
ctagtgatga caagggtccg ttatcgggtg attcatgcaa ttgaggctta tcaacagact 480
gacaagattt accagttaac atcaaattgt tttgaaggct ggaggaatct gtagtgaagg 540
atagatgatt                                     550

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<210> 532

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 532

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gtcaaactg acaatgacat catacataga tgatttttac ctggcagaag ccaaaaaaga 60
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agccatcgtc ctatatccag attcttcac ttactatgga aacagagccg cctgttatat 180
gatgcttttt caatataaaa atgctatgga agatgcaaaa aaagcagttg tgctcgatcc 240
aaattttgct aaagcatatc ttcgcattgc aaaatgcagc atattggtag atcaccggng 300
caaataacta acctgaagng gaatntgcat taaggcaagt ggnttaaatt ggccttgccn 360
cctttanant atnccnttg taaccaagaa nagaaaaattt ggggggtntt tttggcntnt 420
tttttggggn aanaccacgt ttcccaaaaa ataccctttt ataattntng tngnggtngn 480
aaaaaanccc cccccccctt ccccggtttt tccccggngt tttttgggnc tcccgaaaaa 540
aagggggggc                                     550

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<210> 533
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 533
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 atcgaaagca gatatcagat atgagggtcg ccttttctact gttgatcctc atgaatgtac 180
 aattgcatta gcaaccgtac gttcatttgg aaccgaagat cgagataccc cgtttccagt 240
 tgcaccgcaa acgcaaatat atgattatat tttgttccgc ggatctgata tcaaggacat 300
 aagagttgtc aacaatgtca ataatcctgt gcccaatgac cctgcaatta tgcagttatc 360
 ggtgcctcca agccttggcc aacctactta tcaacaaccc ggatataccc atccagttct 420
 tggagctgta tggggcaatt tggaggtgct tatggaatgg ngggtgccac aaagtatgcc 480
 gctggatggc aatagaccag tggcaaacaa taaatgagtt gcgcgggagg atggcagcta 540
 tcacacaga 549

<210> 534
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 534
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 tgtcagtag gatgaagtag ctaaagatgc taaaaatttt attgaacgca ttcttggggg 180
 atgtgagcaa aacctcagca actaaacaat tagtcattgg ttcattatca ggatggacaa 240
 ctggatttgt tactatgagg attggtaaat tggctgctct tgccgttggc ggtggtattt 300
 taatattaca agtagctaac cacaaagggt acatttctat tgactgggat aaagtaacta 360
 aaaaggctga taaggtgaca gataaaattg aagaggctgt tactggagaa actcctaaat 420
 taatggataa aattgagaga tttgttgata ggaaaattga caaagcagag gaattgctaa 480
 agaaaaatca aagaaaagcc aaaaaatgga tcacggcttc aggtgaagaa gaattaaatt 540
 gcaagaaat 549

<210> 535
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 535
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 agagcacaaa tgggttttact aattagtcga aaagattcac ctgtagcagt ctcaaagcct 120
 cctgtattca gccagagtgg taatgttagc aacacgacac cacaaaccac agttcctgga 180
 tctaacatac attcagcaca agttaggagg agctctagac tttttacaaa taattactca 240

gttaaagaaa ataataaatc tccaaataga aataaatttg ccaccccaaa atctcctaga 300
 aaaccaaagc aacgtttaac aaagactaat ttaggtaaaa caaattacga aataactgaa 360
 aaaacagtag ataaagaaaa agtagaaact ataacgtctg atcaaaaagt ttgctgaat 420
 aatagtataa actctgacaa acatcagcgc agcaacttta gttttgcaaa acaagtgtga 480
 tggactctgt tcttttaaga cagtaggcaa gcttantatg ttaaccaat tcgtgcnaag 540
 antgtgtgt 549

<210> 536

<211> 409

<212> DNA

<213> *Ctenocephalides felis*

<400> 536

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 aattaatgct ccaaccactg ccgaaaatat ttatcgatat tgagaaaata tcattataaa 120
 taaatccggt atacatggag aaaatgccca tcaacaacat aatatagcgt ccagaaaaaa 180
 atatgttcca cgtgtcatca gttatgtttt tggctattaa ttttttctcg ttgatcacca 240
 aaacagcggc aaatattaaa attataagac catgaccaat gtcgccgaac atgactccga 300
 ataaaaatgg gaaggatg atgggtgtata gtgcagggtt tgcttctcta tagctggcta 360
 tgccataaga attgatgaga ttctggaagc cctgagtga tttatttgt 409

<210> 537

<211> 166

<212> DNA

<213> *Ctenocephalides felis*

<400> 537

atagctgac ctgacatacg ttcagctgtt acgacaggac cagaaacggc gtatacatag 60
 ccgaattttc cctctcgctc ttcacccgag attttattaa gttcttgagg cattttggct 120
 cctttggtta tttgtcgttt taaaacacac tctgatcctg ttcgaa 166

<210> 538

<211> 135

<212> DNA

<213> *Ctenocephalides felis*

<400> 538

tgantgcggg tgctctggag gaacaaaaa cctactcact ttataagggc ttcatacatc 60
 tcggcgctgg tttggccgta ggattttccg gcttgccggc gggttttgcg attggaatcg 120
 ttggtgatgc tggag 135

<210> 539

<211> 79

<212> DNA

<213> Ctenocephalides felis

<400> 539

tgatgattat gaacaagtta aagctgtagc tgaatattat gctgagtatt ctgctttatt 60
cgaaggctct gccgatggt 79

<210> 540

<211> 140

<212> DNA

<213> Ctenocephalides felis

<400> 540

gtaggggcac aaattccacg aagtttttgt catagaagtc atccaaagca cgcataatatt 60
tactgtatga aatcaaccaa ttgattgaan ggaaatgttt cctttgagct aatttcntat 120
ccaaacccca naacacttgt 140

<210> 541

<211> 462

<212> DNA

<213> Ctenocephalides felis

<400> 541

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ttcaacaatg agaattttga caaatagtgc agaattggca gcatcagcaa gagctgctcc 120
agatccaaca ataccaacag cgataccgca gaataaattc acaagaccaa cagccaaacc 180
agctccaaaa agaacataac caccatcca atttgcttct ttatatcctg ctttttcaaa 240
aacagatttg tctgtgtatt ccgctaacag tcttgacaga acaattgctg taattaaacc 300
ataaatagca acagcttcac agaaaataac tgaaattaag ttttttggtt tgattctggg 360
cgctttcaca ccacctccta caatggatgt gcctgtggta tgaattccaa caagctgctc 420
caacanctga naatgctacg gntaaacaat tctaaggga gc 462

<210> 542

<211> 396

<212> DNA

<213> Ctenocephalides felis

<400> 542

aattggttgg taaagcctcc ttgggcggaa actgacaaga tcacacttga anttgccaag 60
ctcttgaaag acgatttcct acagcagaac agctactcat catatgatcg tttctgcccc 120
ttctataaaa cagttggtat gttacgtaac attattgctt tctatgatat ggcaaaatac 180
gcagttgaat ctactgcaca aagtgaaaac aagattacct ggaataccat tagagatgct 240
atgggcaata ttctatatca gttgtcctca atgaagttca aggaccagct caaggatggt 300
gaggcaaaga tcaagagtga ttttgatcaa ttacatgagg atttacagca agcattccgc 360
aacttgnag attagattat tgtgaatata atatgt 396

<210> 543
 <211> 283
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 543
 anacactttg tctttgttaa tttctgtttc tacgtagcgg agctttctct ccatctcatc 60
 acaacgcctg acttcgttga cgaatttacg ttgaaatgaa ttaacatcaa cattcaagtc 120
 tctaaattgg acggttccag cttctcccaa ttctgaaact gaagtgtgag cagcttcagg 180
 ctgaataaac atctggcata aagccatctc ctcacttcga aacatagccc ccatgatgtg 240
 gcctattcaa caccgcctcc ttgatacaaa ataagcgggt tgc 283

<210> 544
 <211> 346
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 544
 gacatttttag aactttcaac aaagatatgt tcaacacaac aacagactat gtaaaaactg 60
 tatacatata taatggaata ttttttgat cataattaaa ttgtaaatct catgatttac 120
 taagcgttga cattaacagt attagcagca gctccttttag tttcactggt ttggtccttc 180
 tcgagttgct tgccaaggta ttcccaatta tgaaccatta atttctggac tgccaacaaa 240
 gcttcataatc ttacatttgg ttctcatat gccataaatt gcataaccag ttgtttgcc 300
 ccaagctggt cgatgatatt ttgcccacgt ggataatgcc tgacgt 346

<210> 545
 <211> 498
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 545
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 aaagcttcag catatgagga catgtctgtt aagattacca acacgtgctt ttcacattgg 120
 taggccaaga attcagcagc tgtcaaagcc agacgtgggg taatgatacg ttcaatagtt 180
 ggatcattgg ccaagttcaa gaacaggcac acattctcca tggaaccatt ctctcgaaa 240
 tcttgtttga agaactctggc agtttccatg ttgacaccca tagcggcgaa cacaatggca 300
 aagttatcct catggtcatc caaaactgat ttctctggga ttttaactaa acctgcttgc 360
 ctacagatct gggcagcaat ttcatgtgg ggcagaccag ctgcagagaa aataggaatc 420
 ttctgtccac gagcaatgga gttcatcaca tcaatagcag agataccagt ttggatattt 480
 cctcangata gatacgag 498

<210> 546
 <211> 393
 <212> DNA

<213> Ctenocephalides felis

<400> 546

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tctccaatat caaagcaggc tacagacaga acaaggggat cacgagagct ttcaagtaag 60
nggatcaana tacgcaataa ctcataattc ttctcattga gacgtggggc attctctctc 120
cagaacttag cagatttggtg aacaggtgac cattccaatc tgccggactt gatttctgta 180
gcatattcat caaatgagct aaggtcttga atggaagctt gtaatttttc ggtcaaatat 240
tcaacatcag caacgatatc ctcatcatct gaacgtcttt gttccaggat ggataattgt 300
ttcaatacct tgctttgcac cattgcaatg caatgctcct tggccacctg ttgatcttcc 360
actttctcaa ttaaattcct ataaacagcc agt 393
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<210> 547

<211> 649

<212> DNA

<213> Ctenocephalides felis

<400> 547

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gatttagatt tggtagaatc agttttaact gatgccatgg atcagtataa acaacagatg 120
gttaccaaag aagttgtcgc cactatcaat agggaaagcat ttttgccagt agaattgctgc 180
ggtggagttg aattgagttg acttaattggc cgcattaagg tttcaaacac attggaatcc 240
cgtttggact tgattgtcga acaattgatt ccagaaatcc gaactgcctt attcggaagc 300
aatgccaaac gtaaattcac agactaaata ttcatatcaa attacatgat taggatgcaa 360
agtgacctag attcgtatta gtaaaaagca tcaagatcaa aatgaatgca caatcagatt 420
cataatgagt gtttttgcac gatacacatt ttttcagaca atagttcata taattgatgc 480
ttccctttgc ttcatagtcc tatttcaaaa atgttaatag atgcacattc cgtagaagtt 540
atatagcatg ctataattga atgatgaata ttacatttga aaattttgaa tacttaattg 600
gnctaaatca taattttctg aaacatgcat tttattcaac acttttgct 649
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<210> 548

<211> 360

<212> DNA

<213> Ctenocephalides felis

<400> 548

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cggtatcacc ctcaagtgaat acttccgtga tatgggttac aacgtatcta tgatggctga 120
tttcacttct cggtgggctg aagctttgag agaaatttca ggtcgttttg ctgaaatgcc 180
tgccgattcc ggttatccag cgtacttggg agctaggttg gcctctttct acgaacgtgc 240
tggtcgtgta aaatgttttg gtaatcccg aacgtgaaggc tcagtatcaa ttgtaggagc 300
tgtatcaccg cccggtgggtg acttctcaga tcccgctact tcagctacat tgggtattgt 360
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<210> 549

<211> 357

<212> DNA

<213> Ctenocephalides felis

<400> 549

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ggattcattc gatcagcttc atcatcatat acatatatat gttttttgng ngngatttaa 60
taattggctt aaattttaca tcttgnttgt tttaaacttt gttgncaacc atatcgacgt 120
tcagtttata gtagacatat ggatagtaat caagcttggc caaaacccan accaggaata 180
tcaacgttct cagaagcacc ggagctttgt agagcactgc tgtcaagtgt ccgtacaatt 240
gattgagcac atctcgtaat ctcttgatgc tcttcttaga tggttgaagg caacttcagt 300
gaatgcttct gtgcatggat ccatgttaag gcgctacgag ttttcgttga gtcaagt 357

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<210> 550

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 550

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cactnatattg gcccaattta tgaacgtgct ngacgtgttg aaggcagaaa tggttctatc 60
acccaaattc caattttgac tatgcccaac gatgatatta ctcaccctat tcctgatttg 120
actggttaca tcaactgaagg acagatctac gtagacagac aactgcacaa caggcaaata 180
taccacctcg taaacgtatt gncttccctg tcacgtttga tgaaatntgc cattggtgag 240
ggtttgacac gnagaganca ctctgatgtg tccaatcaat tgtatgcttg ctncgccntt 300
ggtaaggacg tgcaggctat gaaggctgtc gtangagagg aagctttgac acctgatgac 360
ttgttgnact tggaattctt gcgaaatttg agaagaactt tatctcacan ggtanttatg 420
agaaccgcac agantttgaa tctttggaca ttngctggca antggtggga tcttcccnag 480
gagatgttga agagaatacc 500

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<210> 551

<211> 116

<212> DNA

<213> Ctenocephalides felis

<400> 551

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ccatgtcagt ggccaaagtt ggttgataac ctacagcgga tggaatacga cccaacagag 60
cagatacttc agaaccggct tgagtgaaac ggaaaatgtt gtcaatgaaa agaagt 116

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<210> 552

<211> 294

<212> DNA

<213> Ctenocephalides felis

<400> 552

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caaaggctat caaaaaatgt cttttctaac aagtgtttac atatttgctt tgtatcgaat 60
actattttaa aaatatttat tatacatgca tcaatgatac atattttaaa tttacaatac 120
ttaatacttt tagtaaggct actatgattt gttgaataat ttaaataatt caaaatccat 180
tacaataat aaatactgct, aaacaattag caacatactg tatggataat acataaaaatt 240

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actcggagtt caaaaaaaaa aatnaaaaaa aaaaacaaaa aaataatcat gagt 294

<210> 553

<211> 436

<212> DNA

<213> Ctenocephalides felis

<400> 553

tttgcgtctn tgggccctgt cacttgetca cgcacaactt tcanacgtat tngggaaaat 60
 ggtgntgncc atgggattga gccaaacaac atatactggc tcgattatgc tctatgtgat 120
 attctgcgng ngggcactat tcacaattgc catcctagtt atgatggaag gcctttctgc 180
 gtcttgcaca cactgcgtct tcaactgggtg gagttcatga gtaagttcta ctctggtttg 240
 gggtatttgn tccaaccctt ctgcttcaaa actatttttg acgcggngga taaggagca 300
 gaataatcaa tttatctatt atttaataaa attaaaaaac aaattagtta taaagaagg 360
 ataaaaagn aaaatattgg ntaaaaattg nttttaaaag nctgnaagng atttgggaata 420
 acacttaatt tgtagg 436

<210> 554

<211> 223

<212> DNA

<213> Ctenocephalides felis

<400> 554

aataagtgtt gttaaaactt ctttgtattg ttccttatta cgtgtaactt ctcccaacct 60
 tttgctgggt tcatccaaaa cattcctcac atgatcttca cgaactttca ataccttcaa 120
 tcgagcttgg ttgagcatgt tggatgattg aattttcttt tgcaattcaa cttgtttttc 180
 cttcttctca tagtattcca taatctttag tcgctgttgc tgt 223

<210> 555

<211> 418

<212> DNA

<213> Ctenocephalides felis

<400> 555

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 aaagatattg tattttaatt ttaatttata ttgatcacia attaataact cgttacattg 120
 taataatact aaacaatcta tttacaatta aaaacactcc tttcgcaaac ttttaattctc 180
 cttcttgatg cgtgtggatg tcattctgta aataatggag tccctgccag ggtccattgt 240
 ggagatcgag atacagatag caagtaacga gaagaaaaag gctactccga accataaaat 300
 gatgttaaaa accaccgggt aggagtcgtt gtattcttta gctagggtga aatcggggtc 360
 ttttgagca tcatctgctt gccttgctta cgtgttaaga cgtcattaga gggtagt 418

<210> 556

<211> 289

<212> DNA

<213> Ctenocephalides felis

<400> 556

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cgtagcccag accagtaact gagaaattac ccgcaaacca cccattgttn actgggcaac 60
gtgtnttggg ttctctgttc ccatgtgttc agggaggaac cactgccatc cctggagctt 120
tcggttgtgg aaaaactgtg atttcacaag ctttgccaaa tactctaact ctgatgtcat 180
catttatgtt ggttgccggag aaagaggtaa tgaaatgtct gaagtacttc gtgatttccc 240
tgaattgagt gttgaaatcg acggcgtaac tgaatctatt atgaagcgt 289

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<210> 557

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 557

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caaatccttt gacattagat aaacgtagta ctatttaagc acaaaaaggt ataataataat 60
aaaaatggcta gccagactca gggaattcaa caacttcttg ccgctgagaa aagggtgct 120
gaaaaagtct ccgaggccag gaaacgcaaa gcacgcagac taaagcaagc taaggaagaa 180
gctcaagatg aaattgagaa atatcgtagc gaacgtgaga agcaattcaa agaatttgaa 240
gcaaagcata tgggctcacg ggaaggagtt gcggctagaa ttgatgctga cactcgtgtc 300
aaaatcgatc agatgaacaa agctgtatct gttcaaaagg atcccgtgat gtatgaaatt 360
ctgaagttgg tctatgacat caaaccagaa ttacacaaaa attatcgcaa agaataattt 420
atthttattca gagtccagat gaaaaaataa tatatttaat aaagattgtt tatatccaca 480
tttttgctta tgtgaaaaaa tcttaataga tcaatctgat tttagaaatc tagaatttta 540
antagggtc 549

```

<210> 558

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 558

```

ttttgattgt tattacttta ttttaacaaa ataccgtgaa aatcatttgg tataattaat 60
aaagaaccac atcaaaatga cagagtattg gctgatatct gcaccagggtg acaagacctg 120
ccagcagaca tgggagacga tgaacaatgt caccagcaaa caaaattcat tatctgtcaa 180
ctacaaattt catataccag accttaaggt cggtagatta gatcagctcg taggtctgtc 240
tgatgatcta ggcaagctcg atgtattcgt tgagcagatc actcgtaagg tagcaacata 300
tcttggtgag gttcttgagg accaacgtga taaacttcac gagaatttaa tggcaacaaa 360
cagcgatctg catcttacat aactcgcttc cagtgggaca tggcaagtac ccaatcaagc 420
aatctcttcg taacatctca gatatcatca gcaagcaagt aggacagatc gatgccgctt 480
gaaaacaaaa tctcagcgta cacaattgaa aggagtttgc agacttgagg aagaacaaac 540
tggaanttgt 550

```

<210> 559

<211> 371

<212> DNA

<213> *Ctenocephalides felis*

<400> 559

```

tggatattggg agaattaatt tgtgttttta aaaaagttcg tcttttttga ataactgaat 60
gaatgagatt ttttgggtaa caattttcaa ttagagttat ttttactagg gataaatttt 120
gtggatggaa agtttgggtga gacaacaaaa tagcatgggc tgtaagggaa ataatagtgt 180
ttatcttata gtttctggga cagtatgagg aatagtgtaa gtatctaccc gaccatgtag 240
tttttctata ccaatttggt cgaataaagt tattagtgtt gtaaaccgat acatccaaga 300
aattaagcct gttgttattt tgtagttcat gtgtgaaaat tatattattg ttaaaattat 360
tgaagagatc t                                     371

```

<210> 560

<211> 228

<212> DNA

<213> *Ctenocephalides felis*

<400> 560

```

ctcgtaaatc acttgggtcac cagtttgatt tgtggtagtc tcattttcta taggnataaa 60
catcagntgg ttcattgaaa ggggtgtttg ggtgcttgtc ggcttcgtcg aagggttgg 120
tgcttgtttc ggggtctggt tcgtcgaaaag gatttgctgg aacgtcttgc ttggcgtaac 180
tggtgtcccc gtagacttgt ttcgaagatt caccaattgt tttgacgt                228

```

<210> 561

<211> 269

<212> DNA

<213> *Ctenocephalides felis*

<400> 561

```

agatctacta atgccgcgtt taccactgtc acagcaattc cgcaaaccag caaccacana 60
tataantatg atgctattgt taaatgntca ataatgcac aaattattcc acaaatnccg 120
catgagacca tcacgaatac aagaattgga agctttccca cagagttaat aatagcacct 180
attatgggaa atccaatcgc atatccagct tccaacatta aagaatgcat aaatgcctgt 240
tcttcattg tgtctttaca ctcggtcgt                269

```

<210> 562

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 562

```

aaaaatccaa cggatgtttc gtcatacaga cctatcagtt tgcttcctat aatttcctaaa 60
atactggaaa anataatata caaaaaaatt aatcatgatt taccgacaga catctggatg 120
ccgtcacatc agttcggggt caggcataag cactcaacga ctcaacagat ccataggatt 180

```

```

gttgaaaata ttaaaaaaac atttgaacaa aaggaatatt gcagtggcat tttcttggac 240
gttcgtcagg cctttgataa ggtctggcat cctgggctgt tatataaaat taaaaaacac 300
tttccagtta aatacttcaa gttattaaaa tcttatttag aaaacagatc tttccagatt 360
agagtgaacg ctgaactgtc agatttctgt aaaatagggg caggtgtccc gcagggcagc 420
atcctgggac cattattata tgnattattt accttagata tccaatacct tctaactcta 480
ttatagctac attgcagacg                               500

```

<210> 563

<211> 270

<212> DNA

<213> *Ctenocephalides felis*

<400> 563

```

anatctacta atgccgcgtt taccactgtc acagcaattc cgcaaaccag caaccacggg 60
atataaatat gatgctattg ttaaatgttc aataaatgca caaattattc cacaaatccc 120
gcatgagacc atcacgaata caagaattgg aagctttccc acagagttaa taatagcacc 180
tattatggga aatccaatcg catatccagc ttccaacatt aaagaatgca taaatgcctg 240
ttcttccatt gtgtctttac actcggctcg                               270

```

<210> 564

<211> 210

<212> DNA

<213> *Ctenocephalides felis*

<400> 564

```

ttttnaagtg caacccaatc attagggaac cgctaacaga agttatnaca gtgacgttct 60
acatcggaga atggttagaa ttcaaaaaat aatcatgcaa cacggnctca ttattataac 120
attcacataa aaaatattta aaatatgtaa actagcttgc atgtttattg taagccagtc 180
tataatctat tattgnttgc actttactta                               210

```

<210> 565

<211> 425

<212> DNA

<213> *Ctenocephalides felis*

<400> 565

```

ataagtcatt tgaaaataag catttctgta gtggtgtctt cctggatgtt cgacaagcat 60
tcgataaggt ttggcaccca ggacttttat ataaaaataa agcatatctt ccttcaagga 120
tttttcaagt aaaagtaaat caagtaacat ctgatttcca caaaataatg tcaggagtgc 180
cacaaggtag tatttttggga cctttcttat atgttttata cacaaggac ctcccattac 240
ttgaaaatct gacacttget acattcgctg acgatattgc cataactaagt agtaatcaca 300
gtgctgatca agcttcccga caaacgcaag aacatatcaa taaactacaa atgtggctta 360
ctaaatggaa gatttgcata aatgaaacca aatcagttca tatcacattt accctgagag 420
agggtt                               425

```

<210> 566
 <211> 328
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 566
 gaaggatant ttatgtaa at taatggttga tattantttg gcntttttcaa gaaataatta 60
 tgtgngggca ctcttttgcg atattaaagg ggcataatgat aatgtcgttc caagtataat 120
 gttccaagaa ttaattaaaa taggattacc attccgattg gtgtcagcct taacatttaa 180
 tatatatgaa aggaatataa tagtgaagaa agataacaaa atanttggtg aaagagtagt 240
 gaataaagga ctaccacaag gaggtatact tagcccataa ttgtatgcta tatatgtaag 300
 agatatagat aatatttggg taagaggt 328

<210> 567
 <211> 284
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 567
 tgaaaaacgaa ataattgtta aaatgtctga catagaagaa cattatgccca taaaattggt 60
 aacaaacaat ttcaatcgag aaccttcaat agttacaaaa tgggctatac ctgtatcggt 120
 cgcagggttg gcttttggtg gaacttgtgt ggctaataatg ctgactaaaa aaccaatgat 180
 gtcaggcatt cagaaacaca tccttctgac atctagtttt ggtggagttg gttatatcgc 240
 agataaatat cgtaatgaat attatgcaga aagagatgct atgt 284

<210> 568
 <211> 500
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 568
 accaatgtat aaccgtaga ctgcaacgcg gcgtttacgc gctttgatat ttcattctcta 60
 agcagctaac acaacgtaat tgctttgaaa aaagcatttc naaattttca acaaaatatt 120
 tcaaattaaa aaagtcaatt tctctcactt ttcaaanttt tgnaaagctt tttnnnaaat 180
 tannctangg gncennaagt nntnacaat tngnccgnaa agcnagaagn cctgcaccn 240
 caanggcact gncnccgta aaaanngggg ggctcnana ataattncnn tnnncccca 300
 gentnggna ccnaccgnnc nngttnnncn ntanntntcn ctccnncnac nnnntntcgt 360
 ncnacnacg cnntannncn cncntncnnc nncctntca cennntnncg cncgaccatn 420
 nctntnnnaa ngeccnatnn cccctntagn nngccgtntc tnaattgntn ncnncnttt 480
 cnntganegt ntctcggnan 500

<210> 569
 <211> 358
 <212> DNA

<213> Ctenocephalides felis

<400> 569

```
acaattgtgt agtgcagtgg ctaactgtat tagatgatat agtcaattta aaattcagga 60
actaaactta aattagtatt acgttgctgt cttcacatta tgttctatgc tcatcagttt 120
taagttaaag ttggccacca ctcatatata gcaaatagat aatgactatt gcgaaagaag 180
tctagactat aaaaatacta atttatttat ttatgtagta ttttttagt attgtgagt 240
aaagacgttt aaaatacatc taattcaaaa tagtcaaaat gattctaacc acattttgta 300
tgttttaagt atgcaagcat gtttgcttga gatttgttta agaacctaat tgtttagt 358
```

<210> 570

<211> 368

<212> DNA

<213> Ctenocephalides felis

<400> 570

```
acgtaatagt ctacttctac taggtgttca ctcgtcaaaa tcacgaattg aactggcgga 60
ttaggaattg ccaaataatt tatattttac tcgtaacaaa ttttttttaa attgcaataa 120
aaaaaatctt gtaatttagg ctgtaaaact tcattgnnta aatatagaat atgtaatatg 180
atnagttgan gttggnatat ctataaagtt ttttttngtt tnatgttnc aannatcaat 240
caangttngc ntttttctga ngatattgaa nattttgata caantattaa aatattttga 300
tttttagttt ttttttgcac atatngctga tcaaaatant ataatttttt aanacantat 360
gctggttg 368
```

<210> 571

<211> 255

<212> DNA

<213> Ctenocephalides felis

<400> 571

```
acaatgtttt acatcattaa cattaatttg cattcatcac aatgaacaaa actgatcttt 60
cgttcaatca ataacgtaat ctagaacaat tgtaatgaat tacttttatt attataagaa 120
tccaaacatg tattattcct taaccatttt ctaaagatct atggcatatt taaacatatt 180
aatatatttt gatactattt attttcatta aaataagcaa aattggcata ttaaaacaat 240
ttaaatagtt ttagt 255
```

<210> 572

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 572

```
accactgtat ttcttgaagt caaaattaat atactcagaa atatcataaa aactgttggc 60
ttatttagta aattaatcaa aacgttgtgg aatttatgat tgctttgttg tcgtatttgt 120
aaaggaataa aattgaacag ttgaataccc aaaccatcaa ttgaattaaa agtagtatta 180
```

```

agcttaaaag tcgacccctct gatagttcta ttccttgtga catagtagag actagacatg 240
gaagataaat taaaatactg gggattatct tttataaaga gaagtgtaat aagtaggaat 300
atgttaggaa cggtaagaat attatacttc tgaaaaatat ttctacaact tgcatagag 360
ttaagagaaa acatgattct tagtgctctt ttctgaagct tgaaaacata taatgaaaat 420
atcttctata atatgtatga aaatcaaatac atattttgnt atattcatca tcaaactttc 480
tcatattttg cttctttttc 500

```

<210> 573

<211> 341

<212> DNA

<213> *Ctenocephalides felis*

<400> 573

```

actgtttaat tgtatatgta acttttactc gttactctta tcacagagta atcaaattga 60
caagatgacg cgttcttaat taataaatga tttggacttc tattatttat tataagttgg 120
taaactcttg aaggcaacac agcaatttga tgatatcggc ctccgcctat ttttctcaa 180
atgaataaca caaaaatcct atcgataatt aactaacaat agcacggact tataatacta 240
aaacgaatta tgatttagtt cacattatcc ttacggataa atgaagtgtt tgttacaact 300
tacaataaat gttgtaaaga gttgataaag ttacaaattg t 341

```

<210> 574

<211> 359

<212> DNA

<213> *Ctenocephalides felis*

<400> 574

```

acataatacat atttatgac cttctattag tagattatat aattaggttt ttgtctttga 60
actgattatc tgcaaataac gttaaattaga aaacgcacaa gagaaaatgt ttatatgatt 120
ccgatattta ctcaactatct atttttcaca aagcatagaa ttagttttta tatgatgctt 180
gatcaataat ggtgtttgaa attttaaaat taatatacga agctatttaa tatcacgcaa 240
agaaactttg atgtttataa gacacctatg tttacacata catcacata tattgtaaat 300
attaataactt ctttataaaa tccatgcata tttgctttgt catattctta ttattctgt 359

```

<210> 575

<211> 353

<212> DNA

<213> *Ctenocephalides felis*

<400> 575

```

acataatata taagttcggt ttatattaat tgaaatatat aaaatattcg aatttaaaat 60
taatgaataa ttaaaatggt cgtttaaatt gatttaagcg taatggattt agtggatttg 120
tttgattttg atgctctact ctgtagtcgc ggctgggttc gtcttttcgg tcttttcgat 180
cttattgggc ttatctgtat tatcgggtct atccaccacc gattcgagct caagggtttt 240
gagttgaagt ggcctttttt ggatgtaata agataataaa tttacatcat tacggatttt 300
tccactttct gggtagtaag atttctctt gttgtaggcc ttgtcgcttg cgt 353

```


<210> 576
 <211> 399
 <212> DNA
 <213> Ctenocephalides felis

<400> 576
 acacttgacc caatactgat gtcgtcaaatt attcattattg taaagtcata tataaatcgt 60
 caaacagttt ttgagttggt tcaagtattt tgttttgata gtctagttca aaagatttta 120
 aacacatcgc ccagcaaaat atattgcgtt ttcttcgtaa aaatcaaatt tcgtacactt 180
 gactcaatac cacacacaaa tcattttatt tttctgtctt cgaacacaga tattaatagg 240
 caaatgttat gtttcagtaa tctctagtag tttttttcat tgacatgttt atatacagat 300
 tttaaatata ttgtgttttt tttacaatcc caacgtctct gttatgtctc tcagcactcg 360
 acaatttttg aacctatcga cggggtgtcg tagtgccgt 399

<210> 577
 <211> 1000
 <212> DNA
 <213> Ctenocephalides felis

<400> 577
 accgtaatta aatattggaa tgattttaat tgatttcaaa tagattatta tgaatattgt 60
 aactttcatt attcatattt agtagatgaa atgtaagtag cttataaatt gaacgacggt 120
 ctttatacat gtttatatga aaagtaaata aacaaacctc atagaaattt gataaactga 180
 attgcaaagc tcaaattatt tatttcaagt atataagcga gctttagaat tttcgataga 240
 attaaaatta aaaaatctga tgattttcaa tattaaaaan aaagaaaatt aaaaagaaag 300
 tggaattttg agatgaaaaa aacaatttat ttctcaaaaa actaatcgat tctaagcatt 360
 gtcaatgcaa gcaatatgtn tttttaaatc attggaattt agatgctgcg ttttcacaaa 420
 aactagattt tagcactttt tgctcttcat ctaccaaacg ggtggacctg cctatgcaaa 480
 aatctaacaa aaacgtctcg accgtaatta aatattggaa tgattttaat tgatttcaaa 540
 tagattatta tgaatattgt aactttcatt attcatattt agtagatgaa atgtaagtag 600
 cttataaatt gaacgacggt ctttatacat gtttatatga aaagtaaata aacaaacctc 660
 atagaaattt gataaactga attgcaaagc tcaaattatt tatttcaagt atataagcga 720
 gctttagaat tttcgataga attaaaatta aaaaatctga tgattttcaa tattaaaaan 780
 aaagaaaatt aaaaagaaag tggaattttg agatgaaaaa aacaatttat ttctcaaaaa 840
 actaatcgat tctaagcatt gtcaatgcaa gcaatatgtn tttttaaatc attggaattt 900
 agatgctgcg ttttcacaaa aactagattt tagcactttt tgctcttcat ctaccaaacg 960
 ggtggacctg cctatgcaaa aatctaacaa aaacgtctcg 1000

<210> 578
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 578

```

acattgagca ttcttgactt ttcgcattta aacagctgta ncttttaaat ttaattatta 60
ccaaaaaata ntattaacac ttttgtaag cgataaacia caaatccatt aatccgtata 120
ggaatttatt gagacttttc attgaggagc tacatccgtt taactaaaaa ttgctcaac 180
tagctccgcc ctaccctact taactttata tntatccctt tggaatatat tgacaagacg 240
catttatntg ttattattta tgnnttaanc tttataacta aatactatga aataattcca 300
tatacattca aatcatttta tttagtttca gtaattatat ttgcatataa tataangatg 360
tattntttta cttatttana aattntaang taaatttttag tattnaataa atantgggag 420
gaaatctagg aactaggatg aattttgcaa ctcataaata tgataaacat ttatgaattn 480
tgcttatatt ctaatttgaa 500

```

<210> 579

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 579

```

acaccgtaaa gctttcgctt ttcggtccga gatacgagac ctcgtttcaa aattgaaata 60
tgaatatttc attgtgtgtg agattgaaaa atctgctttc gctgatcttt cattttctta 120
aaacaacgca atgaagcgaa tgttcaaatt cgcacaattt gaataaaatg tgcagagtat 180
atagaatact aacgcaagcg tttactacaa tcgactttga aacactagac tttcatctag 240
cgcccaaaga attgattgag ctatgcgttt aaagtataat attcaaaaag aacgccgttt 300
tcacaacgaa cttcgtcatt cgctcaggca tctggcgata ccgagcagat atacatggca 360
gtgctctcac acaatgcata agagcgctaa gcggttgtaa accgcgtcac gctgcttttg 420
cacactgcgc aatattttgc gactagctcc ggtcaaacgt taatgaaacg aatgatccat 480
cgttgcgaga cgctttaaga 500

```

<210> 580

<211> 277

<212> DNA

<213> *Ctenocephalides felis*

<400> 580

```

acgagagcga catgttcggg aaccgcgtgc ttatacctgc tcgagtcctt tggttttgag 60
acgtcccatt gcatattcat aggatattca taggatatcg cgatattagg agattgtgag 120
gacaagtggg acattccctg gcatgtcttg tgctgtctgg gaaggctgtc aaatgttatt 180
tcttcacaga ttgaatcaat aaccgaaact atgacacacc aaaatactaa ccgaaagcct 240
gcaaataatt ttatcgccaa ttcagataaa tatttgt 277

```

<210> 581

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 581

```

acacaaaatt agaaaaattt aattaaggat ctgcgataaa aaaaaaacia tttttgacac 60

```

```

atgaaacaat tttctaaatc atttttctat ttcattgttca agagaacaga cggacagacg 120
aacagataga taaacaggtg gacacttaac acgttaatcg ccatgataat atcagaaaaa 180
aattttacatg cactatggta actttattag ttgaaaatgt atcgaaaact ccatgtagca 240
aagaaaaaaa gatattttga aaaattcctg cacattattt ttttatgccca catatatatg 300
actgatatat atgtcagaca taatttataa actagtcggn ttggtattta gccttgaggc 360
aagttacatg aacttcccga tatgtttaaa taatcaactt aatcaataaa aaataaatta 420
atttatgagt cattaaaagt attccgagtg gattttattat acataattga aaacgaacga 480
acactttgac tcngagtatt                                     500

```

<210> 582

<211> 469

<212> DNA

<213> Ctenocephalides felis

<400> 582

```

acaacgggga tttgattcca accacaacac caacgcaaac atttttgttc taggcatttt 60
tatacaaat gaaatagcac aatttaaacc aaaacgaaac agaacaagta aaccgcgcaa 120
attatcaaat cactctaccg acgccgacgt cattttgcta ttctcgggat tttagtgtgt 180
cacaaaaacc agatgttgat aacagggtga ctgccgaccg tagtggtgtg ccattagtgt 240
ggaaatttat aaatatacat atgattcaga atatgagtaa cacttggtta tatttataac 300
gaagtattat cacagaaaaa tatagaattg aatttagaaa ataacttttg tatacgaagt 360
gtaagttagc gtggttcaaa gtagagagag ttttgccggt ttctcctttc caaaccgggc 420
gtcctggggt gccagagcaa tcatgtttgt tcttccgaag cctcgcggt . 469

```

<210> 583

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 583

```

actgactgna tatccattgc gcatttngta taatngaata ttnnnagcaa taaactttga 60
nggattgagg ggtatntcna atttggnat tgattcccat tactatgtga tcagtcattt 120
cgtaaattnt attttcctna ttnttcataa ccactatact gtgcgcgtnt gtnatgancg 180
nggcnatnat aacgaatttg ataaaaacgna tncctaataa anatttgatt ttgtacacct 240
aggtcngan cangcnaaga cnaataatgc agatgnncat cacagnggg ganngannaa 300
angtgatgt aganggttca tntttgcct atagnagtc gtattacaat tcantggcng 360
tnagttaaac aacgtcgtga ctgggaaaac cntggngata cccaactgaa ngacttgnag 420
cacatncacc tttnggnag gtngggtaat ntncgaagaa ggnntgnacn gatnggcctn 480
ccaacagttg ngcannctga                                     500

```

<210> 584

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 584

```

actgccttta atagaaacca tagaaagttg agtaatggaa aaatatatgg tggcctatt 60
tttcgaatag atgaatgctt ctcaagtatat acaataaaaag tctcttgggc agtagaagca 120
ttatttcgac aaagatattg taaaactgct tgtgttatga acatatcaat ttctccatta 180
aatcctttct ctgtatgcaa ttcaactaac atagaagcaa aaccggaccc atccatggag 240
aacataaaat gatattcttg ttgagcataa tttttttctt gccaatatgc ttgtgccaat 300
ttctggaatt atgtttatat ttaaatatgc aacaaacttt tcaaaccctc ctctgtccta 360
tatctaatta ttagcaatcc ttccataaac ctacatactc actttatgca attcaggatg 420
tccaagttta ttatcaccat ccttgaccat gttaaggaat ttgataaaaa tgtctctctc 480
tctggcacat agggcccaat 500

```

<210> 585

<211> 445

<212> DNA

<213> *Ctenocephalides felis*

<400> 585

```

acatattttac gcgcaacata gcggcactac gcgcaatatn caagccgnca gattaaaact 60
gtgattaaac tcataataaa actcgatggc acgatcattt tatgaaacat taaatatcag 120
ttattaaatg aacacttaaa cgggaatttc ataatgtaga taatatgaca aaatcgattt 180
tattttgctt ctgtttaaat tgaatatgcc cggtaattga caggttttta ctgataaacg 240
gaatagctnc tgatcattaa tagccaaaat tgtgctaccg taatattatg attcagcttc 300
taatggatna ataataaatt atttcgaatg gtttcagtgg gcggcgtgta aataatatag 360
ttcatcactt gcaatgtag atttatgaga aaatgcattg ctttgctcgt taattaaaga 420
tttcatttaa atttatatat gtggg 445

```

<210> 586

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 586

```

acaagaaaag agggcgatat agctcaatgt gttaaaccgc ccatcgaggg tctccgacca 60
atattcctcg aaggagacaa agctcgaaat ataccatcat tggaaccctt cgagggtggga 120
gatttgctgg tgggcgacta cggtcgtagc aacggaggtc tacggatttc tgctacggaa 180
atcatggcta agggcgcttc caatttccgt attgataaaa taagcggaga tcttgataaa 240
ctagaatttt actttgaagt attactacct cgtcttgaga ctacaggaaa atatgctgta 300
natggaaatg tattattatt acctattaag ggtngtggac catttactgg aaattncact 360
gatagtgtag gaaaagcttg taatgcangg agaaaattgg tcgaaaagat ggccaaaaca 420
tattaaattc acngatttaa atatcangat caaagttgga aaaggtcgct tgcttttgaa 480
gaattatcng tggtgataaa 500

```

<210> 587

<211> 193

<212> DNA

<213> Ctenocephalides felis

<400> 587

```
actgaagttt gttgngcgta aagatcactg atgtgggana agaagncgac aaaacanagn 60
ggtaaacttt cgacaaggaa tacattacca acaaaattat aaaagtcag aataaattaa 120
tatgnaaata ttatgataag gattatatac ttttganttc tttttgtaaa taaagattac 180
ggatttaa tct 193
```

<210> 588

<211> 399

<212> DNA

<213> Ctenocephalides felis

<400> 588

```
accattttat atgagagacg gtatcctagc tttgccatat cattggtcta ttttaggaca 60
gaactggtcc ctatatatgg caatatccac caacattttt atgcaatata taacaaacaa 120
tatactgtat ttttaccatt tatttaccac cgagcaaagt tctctcgaat ctgatctcct 180
cgactagcga caactaagtt attagtctta actgaataat aacacggtgc ctgatatgat 240
aatattataa atatatacta gctcccagtt aagcgcttat atctgtcgct ttacaacact 300
ttacatatta tgcaaatcag gttcttcttt ctattgaagt tccagttgcc tgtaataagt 360
gcateccctat aatttcgatt gtctcaaaga tctcactgt 399
```

<210> 589

<211> 238

<212> DNA

<213> Ctenocephalides felis

<400> 589

```
aaacaattcc gagattaacg gggctcgacc cggcgaaatn ggtgcttgcg tctcgagcgc 60
aataaaaaa ttatataaca caaacaatgc agattattcg gttaacgaaa ttataagtga 120
aaaaaagtca ttaggaaaca caaaaattaa acataaaatc aaacctagca ttagcaaaaa 180
tgccgaaaaa aatattaataa aaaatactga cattattcca gaaatgttaa aatctggt 238
```

<210> 590

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 590

```
actcgggtccg anacgctana tgcaagagc gaacgaaatt tcttactatg agcggttgca 60
angctagttg natatttatt ataaaactat aataaaatta taantcnaat ctttaaaaat 120
atthtngata cgtaaactcg tatatattac ataaatatat ggtatnttat naagacgan 180
atgttttacg tnancatttn tgggtaacaa actattantt ttaatactat nttaccattt 240
atatatttng ctatcttagt atttattgag tttngatant tcatatnant ntaatttnca 300
aatacaatgt gaaaaataag ctattacatt cttacangca attgaacgta gcttatanna 360
```

<210> 597
 <211> 428
 <212> DNA
 <213> Ctenocephalides felis

<400> 597
 actgacttct tgtatttcac caccgtatac ttcttcctgc aaagctctaa aggtctcact 60
 cttggcggga tcgtaaaca cagtcgggtt atatggtagg cttgttgat gacgaatcgc 120
 ttccgagcag ttggcatcgg aatagaggcc aattggagaa ttgaattgtt tatgcacaac 180
 cttgtttgct atgctatcac cagccactct gtgtaatact gaatcggcaa ccttttgctt 240
 cattaaaact tcatgattta atgttgactg aacgggagcc ctcatggcgg gattcgggtg 300
 gtggcgagc tagcaatcat tagcatttga gtcgcgcttc acctttgcac ctggtagcac 360
 caacggggtc gttctgtatg gccaaagtgt tgcagaatca tccattttat ttccgtgatc 420
 cgtggtgt 428

<210> 598
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 598
 cggtttttcac gaaattatgc aacttgtatt aaatcgcttg ttaatatcac tgtgcatgtc 60
 cgccaaaaaa atatcataac tcatcaagtt gtgaaactaa agattttcca ttattacata 120
 ttacatacta tacatcataa tactgaacga agattattaa tcgaacgctt tatggagtct 180
 gatataatttc tgtaattctag acgtataaga atctttccgc ttatcttgac ttatttattg 240
 tttgttaatg attatacgca gcacaattga tattttatca cactttccaa taacaaattt 300
 ttatgggttta tgtgattttg tataaaatgc tgctaattat aaaattattc gactgttatt 360
 acgtgttttg ttggactaaa ttctaagaaa attattaata tttattttaga tatatttggt 420
 tcgaattttt atttctaata taatgttgca ttctatttgn tacatttatt taaataaata 480
 atctgctttg naaaaaaaaa 500

<210> 599
 <211> 194
 <212> DNA
 <213> Ctenocephalides felis

<400> 599
 cctgttgttt agacatcang taaacactaa atttntnaca accganttn agncantaat 60
 cattaatgtg cacnnaaaac taatatttag atgggaagga ttggatttta tcttaaaaac 120
 taaagaaatg tgtcaaaacg tgcgcgttcc tctcggcgga acacgctagc cgaacacagt 180
 ctcgtcgga ctgg 194

<210> 600

<211> 383

<212> DNA

<213> Ctenocephalides felis

<400> 600

```

actcaaaaaa taaataataa taaaatctgt aataagcttt taactgtatc tcattcggaa 60
taatacagaa aaagaaatgt tctttgctga ttattccact tttttcacia ttgtagatta 120
tcatatttta tctataatth atataattht tttaatatcat ttagtthttat atagtthtaca 180
ttatatthcct ttccataatt tttaatattc catgtaatat atgtaggaaat atthttgtaca 240
aggtgttaat attcaaagtt gcataaggct ttttgagctt taaaagtaaa agcttcaaaa 300
agthttggaac tthtcgtatt ttgatgtgaa aatcctaaat atctthththt ttggtthtatt 360
gttcatagca aattatacac agt                                     383

```

<210> 601

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 601

```

actatactat ctaatacata ttaatacaac agaactgatg cttagcattha cattthththt 60
cataatagat ctaaaatgca cttcataaaa caacaacaac attaacgtta atthttaacgc 120
gttaaaaaaa tcactththta atatcagaag ttatagctaa aataatagca tthtattatta 180
ttaaaatatt aactaaattc gtcccaaaat attaaacaaa cacaaaaaat cacaatgtag 240
taaacatcc aattagatta gaatcaaat agtatgaaac caattcgagt aaaatccata 300
catagatgth atatagagcc attaagagta gaacataata attgtagthta aaatgcatag 360
attgcctcat caaaaatcaa cattaaatgt tgtatthtccg atgatttgaa atcaattgca 420
ccacaaatta tctcaacaac aattcactta tacttatatt tatattgaca tatattcagg 480
tactacatct tatcatttac                                     500

```

<210> 602

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 602

```

cataataaat gttacatata ttacaataaa atattatata tgtatthttgt aaaactcatc 60
thththcatcc aattthcttag cagtgcatt aactctgtaa ththtgacgta tatactcgcc 120
atggattcga ttcacaagtt acaaaactgt accacttht gagccctaa atthaccacc 180
catcaacata tcgagagaat cgaatggacc ttatctaaaa gtaaccctta ggaatacaac 240
ggthttatgga gthtccaact tcattgtcac ggattthaaa tccgatctca atactggata 300
thtccaatth aatttgactc thtcaaaact ggacgttgaa ggtgattthca aaatcaaatt 360
aaacctgtht ctcataaact atagcggthc aggtcgaatt tacatcaaca tgactgatta 420
ccacgccagg atgcaaatat atggctacaa gaaagthtgc gacggaatcg aatcctthca 480
gtcaaaccaa tcgacatgaa                                     500

```

<210> 603

<211> 220

<212> DNA

<213> Ctenocephalides felis

<400> 603

```

acgcccaatt aaaatgacga gtaaataaat atcttgcct attataattg cagtttttcc 60
agacattgat tcttgaatta cactttcaac aataaggaca tccgcatcat ctctggcttg 120
tttagtagtt atatttgcag cctttaaatt ttccattagc atgttaatga gcctaatttt 180
attattttga ttcgataaaa ataattcttg ggaaactggg 220

```

<210> 604

<211> 465

<212> DNA

<213> Ctenocephalides felis

<400> 604

```

acgtaacctg ggaggcacac agaagcatct atttcgcggg caagaacgta acggctgttt 60
cgttgcacac taatacaccg cggttacatt tttgctacgt atctaaattg aataaaaaag 120
cgtgtaggtg tcttttatgt tacatactta ttgattaaa tttcctgcaa atatagaata 180
ttaataataa tttcggatca ttagtaattt tattaatat tatcatttac aatatacaaa 240
attacatat tacatagtta acattagaaa actaaaattt gatagtccat aaaatgttag 300
cctataaata taattattta tttattcata atatgtatta tgtttaactc tcttggaac 360
ttcagttaaa tcagacttgg caaagttaag ttttgcgtta aatatgttca actcacttgc 420
atctgttaat gtatctaaaa tagaaccaaa catcttagaa cattg 465

```

<210> 605

<211> 231

<212> DNA

<213> Ctenocephalides felis

<400> 605

```

accaccccc aaaacaccat taatctcacg gaacgtttct ctacgagatt tgcctttaac 60
gaaggaaaac tttaaaatag cgcaatttc ggcgtaagt aactccatgt ttacacgtct 120
ataactgtta aacgcaatat ccaaactaat catgcatagc atcgttttgt aggttatgtc 180
aagacctttc aaattatgta tagtattgcc agatacgagc tctgtagcgc t 231

```

<210> 606

<211> 186

<212> DNA

<213> Ctenocephalides felis

<400> 606

```

acgtttggta atgtcacaga cgctctctcg cgggcattgt atatggtgtg attcattgcc 60
atagttccgc gcgtcgaaat attcaaatg cattgcttcc gttttaacga cggcattcga 120

```


gtttctctct ttcctgcaca agcgatatgc tatttgcata cgggcacata taaatccgcg 180
 ttcgcg 186

<210> 607

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 607

actnctact atatgtatac tttttaaatg actgtaactc gaaaactatt tgagatatcg 60
 atttgaaatt ttaatatggt attttcaaag gtgtaattta ccgaaatata aaaaaaaca 120
 aaatcgattt tttcaaaatt tcacactagt tgtgcccctt aatccatctt ctattgctaa 180
 agtgtaggac gtctactatt ctacacaaat cgcacaaata aaaaattccg acagaaataa 240
 aatcccattt cttcaacatt ttaacttggc accatcaccg tccctctaaa tttcatatga 300
 tatattgcaa attattccgg caaacgcgtt gcgcaacaat gggcccttgc tcaccgtaaa 360
 cataaacagt tcttatcatt gacgtgcctt cgttctgtat tgtatacata tgtatgtata 420
 gatacaccaa aaataggtat acatgatgaa atattctgca acgaatatat cgggaaatgc 480
 atgtattatg cattaatcaa 500

<210> 608

<211> 269

<212> DNA

<213> *Ctenocephalides felis*

<400> 608

acgaatgtng cacaatcgat gtgatata acaacgaccc aagcgacgtt tttcaaaacc 60
 cgaatcaatt tcgcacaatt ccacaacgaa taaaataaac gtgactaaca aacgatatag 120
 tggaaagata gtgccagcaa attcgaagg tctgattctg attctcttct gcaattagtt 180
 tttaaaatca aaacattttta ttatatTTTA tgaagttcaa ttaattgaag gttttattga 240
 aaatttactg aattttatttc cctcagcgt 269

<210> 609

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 609

acttattaac aaaattcaat caataaaact tattggtatt ttaacttact ttttaagtac 60
 ttcagtatat ttttcagaca gcctcagaat gcttcagaca tctttggaat atttactaaa 120
 tgctcgatat ttaatgagac atgccgcttt ttcatttgat ggccaccaat caaaatcact 180
 tttacagtct taaaatgaca gtgatgatgt cagatgaaag catttgaaga aatataaaaa 240
 cattgtaaac tgtgaaagca gacaaaaaaa taacccaaac aactaggccg attgttatac 300
 aaatctaate aacatacctt aaagcaatat gacactcaaa cctagttatt gtgttaatga 360
 atgagtttcc tcagattatt aacttcaacc actgaacact agatttgtca gggcctccga 420
 ctgatttcaa ttgcaaaatt atttcctaaag cagcttcatt ttgctttcca atacgaataa 480

aacattggct gagcctgtaa

500

<210> 610

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 610

```

acgttatcta ctcaacctga aactttgcct ttatcgcaac tgggaccagt aattagccct 60
gttgcaacca cattgggtcc tgatgcagaa ttgcatactt ttcgagaagc acttgccatg 120
agttctttga gtggacgacg tgctcgacat ggctctgagt tatatgcctt tgtaactggg 180
gaaatagcaa gacactgtaa aagaccagcc agtcctgggt atgtcaatat ggagtctccc 240
acacatcata gtaagcgggt gcggnttatg taaactggta agttaacttt aacactaaag 300
naattttatt atgntaattt acattttacta ttgggtcatgg actgaagaat attctaagat 360
tgccagtttg naatccaagt ttacactgga tattatattt tactaaattc gaggaatgaa 420
ctatgaatga ttcataggt ggattaangg aagtaattct ttaattttat gaccatacat 480
tggaatggac caaaagncct

```

500

<210> 611

<211> 140

<212> DNA

<213> Ctenocephalides felis

<400> 611

```

acaacatgcc acgggttcta ttcaataaac acattttaca catgatttgc cacttacggt 60
tattatctaa gcccaaatca taccctaga ccacgagcc acgggttcta tccactgcgt 120
gtttgtgttg catccaatgt

```

140

<210> 612

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 612

```

actcgtgata tcgtgctaaa aaaatatata aaagtgttgc catatgtgga acttgaattc 60
ggtcgcggca ttcacgtag acacgaacag aatgagggtg gaatctaaac tacattacac 120
ccatagatca gggcttctta aactatgggt tgcgaccca aatggggtca tgtaaaaaaa 180
ttttggggtc gcaaaagatt ttaatgccat ttatttcatt ttattacatc acgccttgat 240
tttttatcaa caaattctta aacatatata ttttcatatt atatgtatat gtatattgtt 300
accaaataaa taaatcattt aaattttttt ttattttattt aaaatcatta aaataaatta 360
aaacatgttt ttatatgtgt agggtcgtca acaaactcgc aatcataaat gtgacgtgta 420
aggacagaag tttaagaacc ctgccataga taaataagca caaatgtttc cttatctatg 480
cataaatgat aaatcattg

```

500

<210> 613

<211> 146

<212> DNA

<213> Ctenocephalides felis

<400> 613

```

ggtcaattga atctgagctc cagtgccttag caaagatcag tgttacgtat aaggtaattt 60
tacataatgg catctttgaa gttaaataac gtaaccagga gcttaagctc atctgcagtc 120
gcgtctcaaa tgggttaaacc acccgt 146

```

<210> 614

<211> 162

<212> DNA

<213> Ctenocephalides felis

<400> 614

```

cttaaaaatt gatgaattta ttctatattt tatgatttgt atattttatt aatgtttcaa 60
agtattatac gacatcttat gcaatcttgt ataaaatcat taatatcatc tagttgtata 120
ttatttgatt gttgactagg ttgtaaaatg ttttggttcg gt 162

```

<210> 615

<211> 274

<212> DNA

<213> Ctenocephalides felis

<400> 615

```

acataaacta cgagcctaca agtcttgtat ttgcgaacga ccttttcgaa caattaatta 60
tttattttta taattaataa gatagatttt atgaataaaa taccatgggtg tttgtttcat 120
ttaaaattgc attgtgaaca tttaggcttt aataatgatt acgcttgaat tctgtattgg 180
gaaatttttg tgactcccat attgaataat ttagaaaattt ttgataagtt cacaacaatt 240
tttgataagt tttattggaa tgataattta tgggt 274

```

<210> 616

<211> 266

<212> DNA

<213> Ctenocephalides felis

<400> 616

```

acatcttcga tggtaaatac ttattagcat tttggaaatt ttaaacacat tatgcagaaa 60
atgtatagtt ctaagcattt ttttaagttt aattgtttta gtctaagttg aaagattaga 120
tttagacaac tccaatcatt tgtaaaaaaa cactgcttgt tttgaaaaac aaaattttatc 180
taaaaattga cattataaaa gattcctaaa aattaaaggt atattgccca taaaacaatc 240
ggacgttatt tccatcatcat aaaagt 266

```

<210> 617
 <211> 173
 <212> DNA
 <213> Ctenocephalides felis

<400> 617
 acgcggaacc gagaacatcg actcatttta tcttttggtta aaattatcac aaagccctct 60
 caagagtaga catagctgcg aacattttatt aacacctaca caggtggaaa tgtaacagag 120
 gcattgtaat ttggaactg tttattattt ttaactaaat acgctaaatt ggt 173

<210> 618
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 618
 actatttgtc gttgctgaca tttttcctgt gacaagaatc ttttaaattg aatgatcgac 60
 aatagcaagt taattaaatg cgtgtgtgct ttcgacgttt agttaaatag tttacggcct 120
 cattctcgat attaattgaa ccaaatacagt tccagagaaa ccacggtgga gcagttcaaa 180
 tattcattga agtttggaat ttaaattcaa ccaattcagg ttagatagcg tagatagcac 240
 tggaaacacc aaaccgcaat tcagcagaag ttttatcatt attttggtat tttttataaa 300
 ttttaaaaac tttttgaaat gactcagatc tatagacgat atgaaatcct gtaatttata 360
 ttttaaaaatt acccggaacc cgggttaaag agaaaagcct tggtaaaatc ttgaccaata 420
 atatgaggaa tggtccttga tactctatgc attaagttac taaaattcct tcgtacttct 480
 catgaccctt tattatcact 500

<210> 619
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 619
 gtntngaagc ccttanntna ngnttcttng tatttcccga ngncntcca ggtacttgca 60
 ctaaagttag atcgtaaaagt tttttatttg naaacaggta tgtccataaa tattgttcgn 120
 atactgcatn nagaatatta ttaattatta aaatcacaaa atatattaca gaaaattata 180
 aaacttttat aaaaatacat atgactgggt taaattagta tgtgattcat cacacacttg 240
 attgtaaaat gttgataaaa aaatatgata agagattcaa tttaaaatgt aatagtaatc 300
 tgtaacagtt acaacaatat ttatatacag tataacaata acaattaaaa ttgatactcg 360
 tatctgcaca aaaagtttca attgttgaag aaataatcag catccaatct atgattaatt 420
 tttggttatt ttccaatag tatggacgga aaaataatcc ttgaaatata ttttggcatt 480
 cagttcatag ctcttcaact 500

<210> 620
 <211> 299
 <212> DNA

<213> Ctenocephalides felis

<400> 620

```
acatctatat ataagttctt atctatatta aantaacgaa gagaaaagtg aaagaaatat 60
ttnttccttt ctttcttctt ttattccact aacgtggacc gtgtcgtatc tgtaattatt 120
tctaacttta cgctcaatct tataattaag gtctgataat ttgccaacta ttttataagg 180
cccggtgcaat ggatgtttgtg gttagtctga ttggccttat ctacgaactt cgggtgtccc 240
taacacccac tggcctacta taaaatttgg catttttgtg gagctctcac gatattttg 299
```

<210> 621

<211> 491

<212> DNA

<213> Ctenocephalides felis

<400> 621

```
gaaatgtcat tgcaaactct gatgataaaa aggcaggtag taacgataac atttttgggt 60
ttttatttta ttttgagtta caactacctt tatacctgat ttgtagagca gaaaaaatga 120
gcaaaaagtt caatgtatta ttgatcacat aaagcaataa tacaaatttt tccaattaaa 180
tgcaacgcat tagtaaattc attgaaatgc aattcctaatt gcattgcatg taaatagaca 240
actcactgct acaaacagtg cattaaattc tgttttaggc attagttttt gaaatccatt 300
ttcatttttag atcatttttg ctatgtgcag tattcgggtcc ttaggatcta aggtaaaaat 360
ttaatataga tataaagtca ctgtaagaat gtcatttctg aacttttact agaccatgta 420
gaatataacg agttcatgct tttgaagatg tgaaatctta attatgttta aattattttc 480
ttctttttct c 491
```

<210> 622

<211> 121

<212> DNA

<213> Ctenocephalides felis

<400> 622

```
acatatataa gcaatatatt aaaagtagtc tatttaacaa acttttaaat attataatat 60
tgtaaaaacta aaaacatata taagaagaat tactaaagca aaattgtaat tagtaactag 120
t 121
```

<210> 623

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 623

```
acgctatata aatgatagtt ttcggcatac ttacaaatca ctcataaatt cttatgaagt 60
ctggacaaga aaattataaa attgaataaa agctctatat gcaaacaaat ggaaagatga 120
ataacgaaac acttagcgac aatgccagtt ggctcccaga ctttgatgaa ttagtaatta 180
tgaataaggc agttaggggc ttgctgtaac attttttttt aattcatata tcttcagatc 240
```

```

cagtgattat atttctacaa aatagaagtg gatagtcgct gcaactatTT ctctaccaa 300
tcaagtaaag ataatttcac aacttttgTT aattatttca caataaatca gtttctagaa 360
aaagttcaga gttacatctt acctcgtgTT tggggcatgt tgtaatagct accggagcaa 420
gtagtagatc ggcaatnatg ctctgataaa tcattctcta ttattntata aaattaactt 480
gttctaagta attctgttat                                     500

```

<210> 624

<211> 409

<212> DNA

<213> *Ctenocephalides felis*

<400> 624

```

acaaatTTTc taaaaatatt agttatgTTt tataaatagt ttaaaaatta catattattg 60
aacaagaaac aaactgtagt aaattaaaaa caagatccaa atttccaaag caatttgTTa 120
atcaataact gaaaaacgac tcgtcgatta ttgacaaaat ttaatcagca agattctcaa 180
atggaaaacg tttgtaatgg ttttgaatt tttaaaatca attcactaat taaaaatttg 240
agactTTTTt gaaaattcta aaggcaaaac taagcagcac gagtgcTTat cgaattttacg 300
aattttgacg atttttcaaa tgggattgtg catttttgag aaaaggccac taaagatgaa 360
attttgctca cgtaaaaaag cgccgctcat ttttgaatc tttgatagt 409

```

<210> 625

<211> 600

<212> DNA

<213> *Ctenocephalides felis*

<400> 625

```

nccatnaaat tngtaccaa antaantttg gatggggTCn anccgnccn ttanttggnC 60
caaaagtaan ctnggctTTt atcntantaa atanggccca gtttattTTa aaccttaatt 120
ctaatactta ttggttattt taaaaagccn tgagaccntt aagtaatatt gctgcgtgat 180
tcccttaatt gngcattcat caacattaat tttcggctaa gttttgngnt gngntcttgn 240
aagtaactaa taatatcggc ttgnttttca agaagttctg ctatatttct tccctgctgn 300
ggaaaaccaa cagcatcgct cctctgncct tctgacatgg nggccatttg ncttatccat 360
tcacttttca aaacatcggg tggnaaatgn ttcataTTa aatcaaaggc cttattaata 420
tatccccatt aacttccatt aaaactgntg gttcacaata ccaatatggt acatatccac 480
tggagaaaga atacttgctt cacaatggtt tggnaaatca tntcataaa gtgggtgctt 540
aaaggttgca taccattat tcagcattcc atanggatct ccntnttacc gatatttatg 600

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<210> 626

<211> 480

<212> DNA

<213> *Ctenocephalides felis*

<400> 626

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caaatttatt gtagttgctg aatgatgaca cgcattctggt gtcgaaacgt ataaataaaa 60
gtttttaata ctttatacct tttttatttc gacgaatggg ctgctagtca ctttgaaata 120

```

tgtatatatg ttcgacattc ttctcttatt acctttgcta gcctgcatgc atttatttat 180
 accccttacc ccgaagggtc ttggatcaaa taccaaaatc ctggatcaatt ccttacagca 240
 gagtaaaaaac caatgtcact actacacttc aatcttctga ttgaaatccc attgctctaa 300
 ttactaatcc aaaccaaact ctatctatta tgtgtttttg aaaatcaata cgcctaaaaac 360
 taccgtaaa ctagactgct aataactgga aacgaatggc aactcactt tatacgtcta 420
 atctaaaaata ttacttcgt gtaatataat atgggtaatg catgggagag gaaaggccgt 480

<210> 627

<211> 600

<212> DNA

<213> Ctenocephalides felis

<400> 627

acaaatatat tctttaatac ttactgtata gtgcattata gaacattatg atccgctaata 60
 tatgttgatt taattaagtg ataacgtaaa tagtcaattg acgatttatt acttttgact 120
 taagtatatg gctaaacaag ttagaacaat ttaaatgacc gacaaacttc atattttag 180
 ttgatcattt caggagatca ttttaaattt ttttggttta agtttcaaaa tagtaattat 240
 ttgtttgtga ccctgggcaa tgcgcgaata taataatatg attttattta cataatgacc 300
 gtattaattg aaataaattg acgtcgaaaa tgtaatagtt ttaattattt atgatcaaac 360
 aactatcaaa acctaacatt attcatgcat tcaagtatta gtgaatgtgc caatttaaca 420
 tgttccggaa aaaattgatt taagtttgga gcaatataaa ataaaaacga aacacaacga 480
 tttttcatgc gaataggcta ctgataatat gttttattgc ttgccatttg gtttaatttta 540
 tcagaaaccg ttcgcataga tttaatcggg tttcgaaagc cagttaatnc agtgacgcat 600

<210> 628

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 628

accattaact tatttttaga aaagggttcag gtgtttttac atattgtctt tctctttttt 60
 agatgacttt tatccatttt taatttgga tgtgtgttat tttcgatatg tagttcacat 120
 agaacacaaa aatattttaaa gtttgatct cctaaatatg ctggtgataa ggaacgtaaa 180
 gctaaactgg gatcacactc aaagtgaagc catcttaaac acattccaca ttgttgccaa 240
 gaactgctgg atggtattaa gtccccattg caattgcttt tgcaattaat aaacgcgtct 300
 tgggaatttc ttagacatag tgaataactg taataataaa taaacaactt tatttgtaat 360
 acaaacaaaac ttgttaattc tgataattca aaattttgtg aaaagatatc tttatcagaa 420
 ttctgatata aataagcaca tatatctaaa ttattatatt tacttacaga actccggctt 480
 ctctacaaaa ttctaattag 500

<210> 629

<211> 111

<212> DNA

<213> Ctenocephalides felis

<400> 629

accctactaa gaatgtgaca gaattttaaa gtcgggacgt ttaatagttt tcgagatatg 60
 cgtggtcggtt tggtcgctgg ctctacgacc aatactaata tttaaacagg t 111

<210> 630

<211> 103

<212> DNA

<213> Ctenocephalides felis

<400> 630

acacatcaaa ttgatttcaa atttaatgat aattataattt atttcatcat tctaagaata 60
 aagacaagcc catgcatcac attattaaac aggtgctttt tgt 103

<210> 631

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 631

actcacatct atctaaacat acatatatga tttgcagaaa ataacatttt caagtcatat 60
 atgacttggg tttgntcant accnttntaa ntttggnaat ggnccctanng gnnnannnca 120
 nggcttattt ataatgaatg taaatgcnca aacatgtgaa taatattaat aggattagta 180
 tgcacgaaaa aattaatanc aataaaaaag aaagttttgg atttttagatt gagaattaaa 240
 aattaatata ttagatgtaa tgattaaagt gcaaatgttt agctatatatt taattgttaa 300
 cagtggaaatg tttattttgt attgaaatct gttattgcta atgtgataaa cattttttct 360
 gtgttatgca catcaatttt tggattact gtgttttaac tgtaaattat aatattgcaa 420
 aaatacatga gtatatTTTT tcatgaagtt actaaaaata attttatcat tttcaaaatt 480
 attgtgcgca tgtatttaag 500

<210> 632

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 632

actaaatggt aattgtgcga gaatggtgga tgaatttata aagaaacata tgggattcat 60
 atngaattaa taaatgtaat gcaatgaaaa cattcgtatt aacaaattca ataagaaaca 120
 acacgaactt aataacttgta acatttgta atgcgaatgg ttcttgcaaa aaagccaata 180
 caaaaaatgg caaatattat atatgtatcc ttgaattatt taattttttt caaacaattt 240
 tccaaaattc cnaaaagaga gaatgtataa ttcagggcag tagcttaatg ataaaacgat 300
 cgccggaagc atttttagctt actatgacat gactattatg aaaataaaat tgatataaaa 360
 tgtgaaacat ttgaactata aatattatat ttaataataa atttgntatt gntatatacna 420
 caaaannaaa nanntngctg tnanaanaaa aaaggttgaa cttgggccgg anaccgnta 480
 ggccgaattt tgganatttc 500

<210> 633
 <211> 392
 <212> DNA
 <213> Ctenocephalides felis

<400> 633
 acaatgtgat tcacggaagc caatTTTTct tccaatcaca caagatgacc ttgaccttgt 60
 gcgtttgtgg tcacaattta gaacaaaaca catccaactc ttagcaaaat tacataaaca 120
 gtaaaatact ttaaataaat aattagccgt caaaactccc accaaatttt atacgtctgt 180
 ttttccgtgt ggaggatact ggcaatgaga actggtttca ctaaactcgg cgctcttcaa 240
 acatttcgaa aatcttaggg agaacaaaat tacaataat tagtcatatt acttacatta 300
 tctttattta catcgtttag tcatctactt tttttaatta tttatagtta gaattacaaa 360
 ttgatttcag acttaagctt ttcaaactgt gt 392

<210> 634
 <211> 413
 <212> DNA
 <213> Ctenocephalides felis

<400> 634
 actacattgg aaacagccag tgatataagc aataagcctc caccgccatt aaagctgcta 60
 atgaatccgt atggtaaagt tttagacata aatactgtgt ataaagaaac tggaaccgaa 120
 ccgctcagtc cggatttaac cttcaatc gtcaatgctc tgaacgcgag caaaggcaga 180
 ggtgctgaat tgttcgctaa gcgccgcaag aaatctgaga agtggatcgt agatgaaaca 240
 agaactactg aaaaaataat caacaaagaa aattctgttc agcagtattg gaaaccatca 300
 caaagtccgt tatgccagac taatcgattg ggttcttggg aaaaaccaa actgcaaagt 360
 aataacaaag agtgccttta tacttctccg attcaatact accaatcgtg cgt 413

<210> 635
 <211> 649
 <212> DNA
 <213> Ctenocephalides felis

<400> 635
 acatgagnaa aaagtgtggt tatatatatt ttttatattt aataaatgat atattcaaat 60
 gcattntttt ttaattctct atcatattca aatgcgctta tgatacaagt gcaaaaatta 120
 catgcagttt tcataatcca aaagatttta taatcgtgta aatgtattta tagagattgc 180
 actactaggt gggcgcaata ataatgctct tactaaataa tttatatacat atattagagg 240
 caccactcta gccttatgct aattgatttg atctatattc agaaatgata aaaattaatt 300
 cactgtagca gtattattca gttgttttaa ttagaatttt aatctaaatt gcaaaatttg 360
 tatatgaaat aaaagaatag gtaatacact agaatacaat gaaataaatg caatgaatta 420
 gatcacaat cattgacttg nttttttata ttaaattcaa aagtttttat aaaacatttc 480
 attgaattaa atcaataaag aaagatagaa atccaaatat tacaagatac attattgata 540
 ttttataata atagtatgaa tccataactc atgtggcaca gccattatta acaattaaat 600
 taacaatatg aaaatcctaa tattaaaact atatttaaga aagcacatt 649

<210> 636

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 636

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actcacatct atctaaacat acatatatga tttgcagaaa ataacatttt caagtcatat 60
atgacttgan tttgttcatt accatataat tttgagattg gcctcatgtg atgagacgag 120
gcttatttat aatgaatgta aatgcacaaa catgtgaata atattaatag gattagtatg 180
cacgaaaaaa ttaataacaa taaaaaagaa agttttggat tttagattga gaattaaaaa 240
ttaatatatt agatgtaatg attaaagtgc aaatgtttag ctatatattta attgntaaca 300
gtggaatgtt tattttggat tgaaatctgn tattgctaatt gtgataaaca ttttttctgt 360
gttatgcaca tcaatttttg gtattactgn gttttaactg naaattataa tattgcaaaa 420
atcattagta tattttttca tgaagttcct aaaataattt atcatttcaa aatatggggc 480
catgtttaag ggaaaatgaa 500

```

<210> 637

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 637

```

actgaattat atcttaatta aatttttgta tatttcgtag aaatataatc gaggatcttt 60
tcttcaagtn ccaaatgata ctgttacgac aagcccctag tcgtcctatt taatttcaat 120
ttttactcta attgtcgttt acaattgatt ttgagctgat tttccgtggc tttagacacg 180
tttttccatg gtttggaac cttgttcgat tttttagttc ttttatattg aatcgtatga 240
tcgttgttcc ttttaattttc tttttgaaac agtccttggtg tggtttgatt cactatttta 300
cttttaggct gcactcatag tcagtaatta atatacacga ttgctgattt catataaaaag 360
taatgtaatg taaaactaga aatttcataa ataatacaata ctaaaaacta ggaacgaaat 420
taaagtctgn cacttntctt tgcatatagt ctttctaaaa ntagaaactc aagaagttta 480
actatgttgc aaagtttcag 500

```

<210> 638

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 638

```

acanagctgn aattaatatt atattngtcg gagggcattt tcaatcnata tcctatagtc 60
gaagtgtcga tgtgangagt ccgcatttat tattcagact tctccatttc ccgctttaac 120
gtttcgatat aaaatcggtt atgatacctn ctaaaattctt tacggcctta ttttagcttt 180
ttattgttcc gtgntttgta tactgaaata atgatgaatg cgcgaaatatt taatttacag 240
tcttcaaagg atatctaaat gttgtcgttt tgnccgtcgt ctgcctgtcc gtctattggg 300
cttttgtgaa ttaacaataa ataaatatgt attataacag tttagactat cgtatggtag 360

```

caaattatTTt tattcaacta attaaaaaaa caggcattat cgatttataa ttcttgaaaa 420
 tctaaggTgt gataaanaaa actggtggtg tatggagagg agaccctatt ttntcaagta 480
 aaaccgggac gataatttta 500

<210> 639

<211> 112

<212> DNA

<213> Ctenocephalides felis

<400> 639

aatttccata attataatac tataatttat ctttttgatc gcttttatatg tgcaaataga 60
 gcangccaag cgcgcattctt ngcagaattg cgaggaaggt attcggggcc ga 112

<210> 640

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 640

acgaacaaag ttttttcgta tcttttactg nttagctagt agagagcaat ctgngtgatt 60
 gatcacttat tgaaatgcaa attacattta gattgcagca attattgaca atattttctat 120
 attttcataa agaaaccata taaattataa tacattgnta aaatttcgta tggntctcca 180
 gtcattcaat tctaataaca atcaccattt aggcataaat cttgcatggt ttctgccctc 240
 gaacaaacgg ntattcacgg ncagcgtggt tagatatagc agcagagccg catattcagt 300
 tcagcaagcn ttcaagaata aaagaataaa ataattttta ttaaataatca actaatatat 360
 aatctttttct cggcaatgaa tataaganat tattatttta ttctatacan tggattaaaa 420
 aaaaaaaaaac ataaatttat ttttattatt aatgctaaat tatttatcnt tcgtttattt 480
 taataaanat aattgaanga 500

<210> 641

<211> 322

<212> DNA

<213> Ctenocephalides felis

<400> 641

nnnnnnTTta gccccgntgt gnttcggcgn cggccggcgg tcatattaaa acaaccggcg 60
 ccgggttttt caactgaaag aaatgttttt ttaattcaat tatttataat taaatacaag 120
 tgaataaaaa ttacatttaa gagtattatt attgcttaac aaaagagtat taaaaaagtc 180
 tactgatcat aaatcaatag tataggaaaa gatttgtaat atattggatg aaggtaaaat 240
 acacaagaaa tcaataaaca aaaataaata ttgtgaaagt tatttacgcg tatataaatc 300
 atctttttaac aagcatcatc gt 322

<210> 642

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 642

```

actccgcgaa tctattgtca aacatgcttt taataccttt tatcatttct gaagaatggt 60
gatcccaatt atcattatct aacctttcaa gataagattt gaagcttttg ttgccttctt 120
aaaaaatttt taagttctgc catcttaatt gtttttagaa ctcaagataa cttaatttaa 180
ttttttgata gggaagcgca aaccggttaca aaatcttacg tataacaggc gttatgcaat 240
atcagcgggt atacagaat ttaaacttat aatcaattga ttatttaaca attctaattt 300
aataatatta gaattggagt ctagcacatc agtaacataa gttgngnggt taataaatta 360
acaaatatat aaaccaataa ttagtaatgn ttataataac taatataata tttcataaca 420
attaataacc taaggattta cgaaattggc caaaatctt agagcaagac caatttcaat 480
caataatatg gtcaggttta                                     500

```

<210> 643

<211> 127

<212> DNA

<213> Ctenocephalides felis

<400> 643

```

actaaaattg gttacaagtc gaagtccagt attataaaaa agttttttcc aaggaacata 60
caattcttta atgtatggca aacatattac accagaatga gtttctgagt caggtaaatac 120
gttatgt                                     127

```

<210> 644

<211> 393

<212> DNA

<213> Ctenocephalides felis

<400> 644

```

acaaaaaat gtccggggcg ttaaacttaa aaggcattgg tctctgaaac aaaatcttgc 60
ttgaataact aaatttttta atacaagaat taattattcg gaaaaagttt gagattgttt 120
taagcttaaa acacttgatg aaagttttat aaaggaaaag ttcatagttt tggagatatt 180
taattaattg tgcaaaaagg tctgtgctg caaacttata aggaatagtt ttcttgaaca 240
aaaattagtt tgaataacta atttttttta tataaaattt aattgttggg aattgtggtg 300
tatgcaaacg ttttagattt ttttatgctt aaaacacttg tgaaaagttt tatgaagaaa 360
agttttatag ttttggaat attcaattaa ttg                                     393

```

<210> 645

<211> 394

<212> DNA

<213> Ctenocephalides felis

<400> 645

```

actttaactc aatgctatct atacaggtta caatattata tattaacca tctgagtatt 60

```

```

ggaaaaaaat taatactgct tattataatt tgtgataaag cacaaaaattc ttaatttgtc 120
actgtatttt tacatatgct taàattataa tttaatatta ttttttagcat ttgttggtaa 180
cttttaattg tattctactg atatagattt ctatgtaagg aggtttaatg gtttttttac 240
aattcatgtg tggatatttg agaatcaaga aagcttttct ctaatatattt atacctctaa 300
actgaattga ttaactctat tttttcttaa tatttataac ctectgctcc tccgcgctgg 360
gtgcgaggta ttgattgctt ggaccgcgcg aagt 394

```

<210> 646

<211> 435

<212> DNA

<213> *Ctenocephalides felis*

<400> 646

```

cgcgggctcc gatncnnaat gcacgaentn tanggcatgc gtgnaagtgc gctattaata 60
atacagttac aaagattant gnaacntana antngccaan cggaangnnt acgttgtaat 120
nanagggaaa acgttttttc annctttnt ntggantaag atngttaaat tgccgattnt 180
caacangnat nggnnnagta nnaaacnagg ctcaacggca aatgccntcc acctaaatta 240
ttttgtgaac ccaanaaaaa ctatccatac ttnattantn tngacggtgt cgggtccatta 300
aagcatgana nttnnccgca tntntntcgg ttttgacan nangngtggg ntgcaaacnc 360
ngannnnang acanactnaa tncnagnatg agtgagtng cgtgagttag agcatncnaa 420
anggatgcgc cgtn 435

```

<210> 647

<211> 492

<212> DNA

<213> *Ctenocephalides felis*

<400> 647

```

tcntacacta caaaaatgat ttttatattt aatgaaaata ctnatttata aaatatctct 60
tcaataagct atagttataa caggcncnnt taataattat gaattgnntt gaaaatgatt 120
tacaataaag ctatgtgaaa caagnntgtg tngtatataa catcatcgcg tnggncgggc 180
ttttccttgt tactatattt ttaaaaattt aataaaatta gctttgtagc aaatgctact 240
gtntgataat tgaattttca ngaatagtag gagttgtagc aggagtcttg ttagcttcac 300
gccatgcttc atcaaaattc tgaatagaat tagaacnaga tgatgaaact tttgtcttaa 360
cgttttcata ggctggccca tttttntnt ngtgatttga aagantcaga atttctcatc 420
tgcccatttt ggtgnaaacc cccgtatttc ccttacaan aagagttttt cggggnagaa 480
ttantactng gc 492

```

<210> 648

<211> 417

<212> DNA

<213> *Ctenocephalides felis*

<400> 648

```

acgccgttgg cgatttccgt gaaaatgttt gacaatgttt gttccagggt tggcttgaac 60

```

```

tcttggaaga atagtcttgc gttgtcggtc acagcctggc taagaattgt tccaagggtt 120
tgatcggtgt taaagagacc ggataggcgt attttattgt ttcccaaaat aattttcatg 180
tcgattgggt tgacttggag gcattcgatt ccgcgacaac tttcttgtag ccatgtattt 240
gcacccctggc gtggtaatca gctgaaatag taatataaat aaattactat aaatacgcaa 300
ttactagaaa tagtaatgta ataagttaac acgttcgcgg gtgtgaatgc tatagcattc 360
atcgatatata acgattaaaa tatgatgatt ttaatactac caatataata tgaatgt 417

```

<210> 649

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 649

```

ttctaaaata atattgaata aaaaatagta gatacaatca gtggcttgta taatagggat 60
agctataagt agtgaaaatg gaagtgcctta ttagaaatac ttttacaaaa cgaattgtaa 120
tgattcagta gcaacatatt aaaaaataaa attgtcaaaa tacttgcttc aaaattatgc 180
tagtattctt ctcatgaact aacattagct taattttata attaactaaa atttttgaat 240
atccctacat tatcgcaaat ccttggtgac tacatcgtct tagcatatta cctagaaagc 300
atctcaccat caactgacaa atttattgga caattgatgc ctaacgtaat taccaatggt 360
tacatcaagt aagatgctaa taattaacgt tatctatgtg cacgtaaaata atgaaacaat 420
aaaatttcgt gagtttctta agcgtgcgct cctcagaggt caaaaagtcg aaaagtcgta 480
gggtcatgat caacgaacgc 500

```

<210> 650

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 650

```

acctactatc acagtgtttt tttactaaca gtttagctat aagtaggatg gtgaaaactt 60
ttaaatgttt tacatcttac tagcgatttt gataatactg attcattggt tataaatctt 120
caaagaaatt cttagttttc tacgtatact caaaacgtag tcaatacgtat tatatccaaa 180
ttttacaccc catttggtgag atttgctgag cataattata tttacttcgt atattgagca 240
gttactaaaa ttgtatacta cgttttcctg aatattattg aacatgtggt gaataaatgt 300
acaccttacc tttattgaaa atatttgttt gtcgatagta atacgtggtc tttttacaac 360
aattttgatt gctgtcaatg tagttgaacc aacctttggg ttcaaaaaca aacctatcaa 420
tttggtgttt ggattccttc gtaaaaatct gctacacata gacattgagc aaaaatcaga 480
aaacccttt gtatccgnag 500

```

<210> 651

<211> 483

<212> DNA

<213> *Ctenocephalides felis*

<400> 651

```

acacctatta aggagcaggt ttcaatatta ctctaataga cctattgctt acacattggt 60
atataaacat cactaaatat ataccatcaa aacttctaca agctaaagca gtaaatacatt 120
aattaacatc tagaatatac aaataagttt tcataaaatt ttcctattct gttctaaata 180
tataatgtgt gcatcgcaat gaaaatacta agacgtatat attaataatta aaatatgtaa 240
taacttacaa ctgtcataaa gatagtgagt tataaatgaa aatatctcag atggtataga 300
taaatttcaa agtttttaaat taaaaacttt ttcgaaggta acgcgaagtg caaacgaaag 360
tttcaccata aatagtttta gttcatttta ccataactcg cgataatact aaatcgatga 420
aaggctgaat tattaaagtt atcagaacaa tgaactgtta gcacacatat gcacatgtat 480
atg 483

```

<210> 652

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 652

```

acctcatgag cagttgcac aatcataagt cgttgctcgt agctcatcgc aagcaggtgc 60
ccgcaaatta tcgcatggtg attcttgagt ttctcgtaa ttctaaaatg taaaataatt 120
tacatgtaat atatacccaa tacactatta catatgaaaa cttattatat atttcttcaa 180
ttcaattatt attattatat tcaatatatc tagcaaataa cgatcgccca tctcttcgcg 240
ttcagtggtg atgtcaaacc tgttcaaagg agattggaaa cacgttggtat ttaattgtgg 300
tagatatggt gttatcctct tttggtgcga atagtattat ttttgactag cttattgaat 360
aatgacccat aagtatggtt tnaaaaantc ttagcntttc catgtaatta ttttgaaaga 420
catattgaca aatcgttgca caaagancct ccatttngtt atgaaattca gatgnnttag 480
ttttagaagg ggctatttat 500

```

<210> 653

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 653

```

acaatgtata ttgaataaga tgtgagcgat accttgnagg gatgtcgcat tgagaattta 60
ggtgtggaaa attgcaatag cattaaaata taccatttga attagatttt taaataatac 120
caaaacaaat cataaattaa attctttcgt agatattcat acataaatat tggctttcca 180
gaaagacaac tatgtagatt tcacattcac tccaaaatta atgagttatt atataacaaa 240
tttttaaata acttatatac aaacactatg cacaagtgtt gatgatatat gaccttaaaa 300
agtaattaaa tattgcgctt aaaaatcaaa tttacatata catttaccca ttctatctct 360
agaaaactag aacagatatt cttatgaaaa atttgctatt ttaaatactt caaagggttg 420
gaccatcttc ataataaaat ccgtncctcg cgngacacgc tagcgatctg ggatttcata 480
cctgnggcgg tcggctgctt 500

```

<210> 654

<211> 330

<212> DNA

<213> Ctenocephalides felis

<400> 654

```
nccgcancca aataaaactcc tcttcataaa ttaatccntt atgttaacaa tttttttaaa 60
tattganaac aaccttttaa natcgatgac cttaacatat taaagcctta cttaccgcaa 120
aatgaagatc aaattgtgga ttgtctttta ttttttacac attccaaact tttgtcaatg 180
acaatataat attaataatt ttcacttatt ttatgtcaca cttattatta ttattatgat 240
cgaaattaat ttttaatttaa taattaatat tcgttgtaac ctcatggaag tatcggtctt 300
aactacgcgg ctttgtaacg ataacaatgt 330
```

<210> 655

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 655

```
nttctagccc ttgggntttt attcccctaa cggggccncg ggcnnngggac caaaatagan 60
cntaatattt ttaatacnng gntaaaagaa anggtaaaan tttgggaggn tttaaaatct 120
ctaacnaggg taaaccnnaa acnaaaaaaa taatttaatc attactctct ttaactttat 180
ccntggcctt tataataactt atagataaaa tagaaaatag tttaaatjtt nctnaacaat 240
gaattcattg ntttagagac gctctttact gntctatcct acaaaatact atacnagccn 300
agtatttttg aatatgaatt ggatatttct aataaagcta taaatacnata cngtatTTTT 360
gaatttaaac ntttctttat ggtatcttcc ncagatattt ggtttccata tctacnaten 420
ccntgaggtt tcttctaatt tcatcaattc agaagacntt tctttttcaa ttttcattat 480
atttgccnch ggatttcaac 500
```

<210> 656

<211> 73

<212> DNA

<213> Ctenocephalides felis

<400> 656

```
acaaaaacat aacttcattg agaaaaagca attaaatcat tttcacactt tctaattaaa 60
atgaaatgat cgt 73
```

<210> 657

<211> 425

<212> DNA

<213> Ctenocephalides felis

<400> 657

```
acaccctga tattacaagt tgctaaccac tgtcataata ttagatttnt aacaagtcca 60
gactgaaatc ttagaaccct tgagcttttag ctgatattaa cggttcatat taacttttct 120
cagactattg cgtagtagct gacattacac attctctcac gaaatcataa acctacatcg 180
acaaatctca gcaagatcat attatcgaca ttccgcctag ttaacaattt tcaccaagtt 240
```



```

tgcataaata acattttggt taatcggcta aattcattac tttgtccttt tcgttgcata 300
gaatattcga gacaaatccc cactacgttt caaaggattt tagttttaat aattatgaaa 360
taaatacgtc ttaatctgtc ggtagccggg caaacacttc tctttcaata ccttcgggtt 420
ccttg                                           425

```

<210> 658

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 658

```

gatagatccn tttcatgac aacataataa tacaaaattt taactcaatt tcaccgaaat 60
gcttaaaatg taaaaccttg cactcgttc gccaatataa tcttgaacga aatagaaaac 120
gacgttgctc tttcaaatct tgcataatat tattcctaga acacttaata aaacaccgat 180
ttaataagat ttttattgnc attattttgn tcattacatg attttcgtta aaatatatat 240
tttaggtatt tgcaaaaaaa cgacgaaaaa cgacgaaaaa cgccaaaaat atatgaatct 300
ttagtagcca gtaacttgaa aagtatgaag ttttttgaa aaactataaa atccttattt 360
ttaaaaaaat acgtaattaa acaattgaga agaaccgaa ttgntttcac ttttgaactt 420
ggtgtagatg aacctaattc ctaatttcac gcnattcggg acacagtaaa aaattcagac 480
acaaaacgct cgttactgcc                                           500

```

<210> 659

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 659

```

acaacattgt tgtaaataat atgttctcga tccaaaatac aatactgtag ggaaataata 60
tgtgtcgcga tttaaagaaa tgtccgggct cgtgtaaact acatatatga tgaataatat 120
aatcatcaaa tactattggg tataaagaaa atgcattgaa tattccagag tataaataat 180
aactacttta cgctcccggg tgggctcgaa ccaccaacct ttcggttaac agccgagcgc 240
gtagccaat tgcgccacgg aggtctttat cgcttcttga taatagtagt aataaattat 300
ttatagcatg aacaataatt ataattattg aacaataatg agtataaaca acaattattc 360
ttatacccaa taaactacac taatctgtaa ccacggcgc aaccagtgcc caatacctgt 420
catacatcgc gctcgattca cttcacacac aaatagttaa catttacttc actcctataa 480
actatacaaa ctatcaaagt                                           500

```

<210> 660

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 660

```

ccttttagcga accgcgtcag aatttttcca ggattcctca atttgttat aaaaatataa 60
taaattttca agtatttcaa ttttatttgt aaaactacat ttttgatca ttattatcac 120

```

```

gagcaagtat tttgtgccgt ttagaaaaac agctggaagc acttaatgct tattgtgttc 180
atgtttctcat tactcaggaa tatgagaatt gagaaatggt tcatttgtaa gtccacactt 240
tttcattcat tagaaagctc tcgtcttgaa gtcgtttact caataattta catgtttatc 300
taaataaaga aatagtagaa acttaaatac aaattggaat aagagcatcg gtagaatata 360
gtataaacia caagcaatt ttaaatacatt aaattacaaa ataatacctca gtttctctat 420
tgtcaaaggg atgtgaaata ttttgatgnt taattttcaa aatcttttat ttaattaatc 480
aaaatattat tccagcgact                                     500

```

<210> 661

<211> 412

<212> DNA

<213> *Ctenocephalides felis*

<400> 661

```

actttttgat atttatgtaa tgattattta ttcaccgatg ttaacagctc aacgtctgaa 60
cgaatactcc aattaaaggt tggatcagcg aattattatt acaaatgaag atactgagga 120
atgactggag atagctgcaa caaactatct atgtaaatac aagcagtaaa ttacctgcaa 180
cagttttaca caaagtattg tattacgtaa tagccggtgg tgattttctg tttcaaaaag 240
ttataacttt tcaagactgc cagtatgggc aagactactg tataaaatta tcaacaaatt 300
atagaaatat ttacaataaa caagggttta aatttttaaat tatataaata aataaatagt 360
ttgatactat ttaacaatat ggtaattat attgctcttc gaatgatatt tg          412

```

<210> 662

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 662

```

accatagtgg cgcttagact gtgcttagct tgggtaaatt tttaaaattt tgaatccaaa 60
attacataaa ttttttatgg aaaaataatt gtttatcttc aaaagcaatt gttttgtcaa 120
tacaagcaga aagtttagtc aaaattctag tagatacttt ataagaacaa aaattaggca 180
aaataatatt ttgatttttg gcaagtttca agtggtaaat agttacttaa tgcaattgac 240
tccattgtaa aaattggtga gggtaagtta tagtaatagc aaaaaaagg agaatgaaat 300
atttcacatg tctttacatt gcaaagggtt ctgatcggtt taataaaat gatgtatgaa 360
tgtgtgtgag aagtaatttt tctcattatg ttatatataa taataagtaa aaatcagaa 420
tttagggata aaagtagttt atgctgataa aaaatctata tgtaaaattt ttaggtatat 480
cggtcagta aaagtgaga                                     500

```

<210> 663

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 663

```

ncatnaatta cttgagccac aatgtataaa tntttcacta ttaagatnta taacttntct 60

```

```

ttttcaaadc ntattttggg ataaantaac ttatcataaa ataaaataact gggtaaaagt 120
atggataaaa ntnatatcan caataaatct tcatgaatct atntaataaa atggncaaca 180
tcgntnttta ataaatgggc ttcaaatttg actngaataa atacttgnta ttgcttccta 240
ggtaaaattn atatttttaa tggacaaaat gttactataa tattcttnna tttatataac 300
aagaaaaata attctaaaat caatttcttt gattcacctg ttattttcca ngcgcgcggt 360
aaaganaaaa tagttacnga ataatanaaa tcaaaagtga accggactgt gtgcaaattt 420
tatgatcgag atcttgaaca gagtntttgt aacacgcata tntggtttag tgccattgaa 480
tantgttatg gtgggggtgc 500

```

<210> 664

<211> 295

<212> DNA

<213> Ctenocephalides felis

<400> 664

```

acttatgaca tatcatatta taagtttcta acaataatcc agtttcaacta atnaatattc 60
cnggaactat gcttatgaaa aatgaattaa ataaaacatg aattgctaca tttattcaaa 120
atTTTTgaag cattaacatt agtatacagc atagaatgct acaattagcc agatagtcag 180
aaatcatttc aaaaattctc cgttcatggc tttgttaaca acaattattt taaacggatg 240
ccagttagat tgttttagaa taaaactttt gagagaaata taatataata atagt 295

```

<210> 665

<211> 310

<212> DNA

<213> Ctenocephalides felis

<400> 665

```

acttcaaaaa cgcgtataaa tagcgcgaag tctaattttc tagtttttat aattaattaa 60
ttttcacagg cctataatat tttaatatta tgattttgtt tatcatctct atcaccatgc 120
gacgtttcat aaattttgca gataagtata tctgaggttc tccttgtaag ttgtccgtgt 180
tatttaaaac aagtatgatt taatttagca agaaccaaaa ttagatactt ttaaaaaaaa 240
ttaaaaatgt aaaaaaaata tttgcaaaat tttcccata tactattcca cttaaaaatg 300
cccctgttgt 310

```

<210> 666

<211> 365

<212> DNA

<213> Ctenocephalides felis

<400> 666

```

acaaagcadc tacatatcgg agcctccagc aatattttcg cataatattt ttctgcgadc 60
gattttctgt caaacgctac tcataaatta taccgacaga acgaacgtag cgaacatgaa 120
aaatatctgc gcaaaatctg cgagctataa ttcaaacttt aaatatagtc ccgctttcac 180
aaacagaaga tcagatcaaa agcttcgata cggcgataaa tcggatatta taccgactca 240
aaacgtcgag aatggagaaa ataatacgat gctgtcgaat ccggtaatag atttgatagc 300

```

aaagtataaa gttgtgtaat tacaaaccca taaatcattt tctccataaa tatcaaaatc 360
tcggt 365

<210> 667

<211> 385

<212> DNA

<213> *Ctenocephalides felis*

<400> 667

tggngttttt antgggactt ttnaaanccc cgccgngcag tacctttatt attatgcttt 60
ggttcacgtc gggataaaaa tgttttgaac aagacaaagt ataataaaa taagnataaa 120
atgttttgaa caaaactaaa ttaatatata ccattttctgg gaaccattgc agactgataa 180
gatatcaaatt gctattgaaa cgatatgatt tcaagaatca aaacgctttc atctatcttt 240
tatatttggc tatatttgtc attttccatt tatacagtga aagccgacta ttttactaa 300
aaaaaccggtt tttgaattcc acaatttccg caaaaaaccg gttatcaaaa ccggtttttg 360
aaaaaccgaca aatcctactt acagt 385

<210> 668

<211> 160

<212> DNA

<213> *Ctenocephalides felis*

<400> 668

aggnntngng aaccctttna aancnagact tnctttaann ccccgnnagt tacatggntc 60
aaggagncta gccgccatca gggaaagttn cagacatacc gtttatgtcg aacaaatgaa 120
agatggcgaa ggngctgtca aactggaaat ttcanaatgt 160

<210> 669

<211> 320

<212> DNA

<213> *Ctenocephalides felis*

<400> 669

atattgcttc tacaaatgca atgaaaagtc aatttgtntt gaatgtcacg taaactaata 60
aaggaactta tagataaatt atagcgacac aataatattt ttatttcata cggataata 120
tcatcattag tataaaattt tccgaaatac tcgcataaac tgctaataata atgaaaacaa 180
ctcacgtatt ccgcaagggt gtccaatgca tggatcgaca catttatatt gagaacacgc 240
taaattggtt gggcattcac tatcgctaaa gcattcgccc tgaaacgaaa taaaaaattt 300
aatttaacat ttgactgagt 320

<210> 670

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 670

```

acaacaagtt caaatcttct tgtttgtgct ataattttct atattcatta taatataacc 60
ttattttttt aaggnaagtg ttacacattt tccaatgaat cactatgtaa tgtgatactc 120
tattttttaca agttgtgtgt ttgttgagca aacatcataa tttttgaaga gacagttaaa 180
tataaataaaa aattcttcac gtttagatat cgtatgaaat cgttcgaaaa ataaataaca 240
gtgataaatt tttataaaaag caaattgata aaataaagtt tgataaagaa aatgcaattt 300
tagctaactg gactttcagt gtagtgatat catatcatga atttatcatt accgattgaa 360
tattttatca caataagttt tgtgcatttt atttgaaaag ggcttgctcg .tggttaatg 420
attatgacct tggctttcca acaagaaggn taaggcttga tcccatttga aaatcagatg 480
gaaatatatt tctagtata                                     500

```

<210> 671

<211> 332

<212> DNA

<213> *Ctenocephalides felis*

<400> 671

```

acaaaaagat atgatttggg tcttatcatt attgagaact agattattaa atttatttga 60
nccaaagtaa atcngcaatc atcttgtgat caatttctac ctctgataat tttctatgtt 120
agcatttttt atcataacaa atactattaa attaccattt gattattata tggtttcaaa 180
tggtttatgt tataataaat tacatataaa atatataatg atatatcgcg tgcaaaacaa 240
aagttatggt taaatcgctg gcaaaactta caagtataaa cacctaatta agcaaatgtt 300
ttcaattaaa tgtaaaagca gttttcatat ag                                     332

```

<210> 672

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 672

```

actactcatg tgggtttttct cttccatcca ttgtctattt cgaaaccttc actatcaaga 60
agcacgagag ccttccattt attttgagag ttgaccaaga attgcagtag cagccagctg 120
cagcatattt catagctgat gatgtttttc taatattctt tgttttgcat tgccggtatt 180
ctctgtaaaa aaaaaattat tacattaatt attcaaattt atataaaaaa ttaccgacga 240
attttttaaa tcatttatat tatttgactg caatactcga gttaaattaaa tttgtaatgt 300
aaattcatca ctgataaaat ttttaaatat tatcaagcag tttacaata acttacatat 360
atttgatata aagtctttga ttaggtagcc atttactagt aattctagga tttgcatcat 420
acatcctctg atttgcttgg ctttcttcca cagtctcgct tgacgtgttt agttattcaa 480
gccaatccat tgcccaaag                                     500

```

<210> 673

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 673

```

actatgaaga atgnttctat ataatttact gnattgnagt taactatatt taaatgctaa 60
cgtgcattta tatgttaagn ttagatttat tattgntaat attatatcta aaatgattcc 120
tacatataaa ataaataaaa ctttctgttg ttaaaacttt agaaatgtag ttattttaaa 180
tgttacatta ttgaattaat acaagtttta tatacaatga aatatgtttt aaaattgtat 240
attgntcatt atattttcat gcgccagtaa tagttgctgc aattccttca ccacaattga 300
agttttcttg tagttgttgc agtttgttta ccattcatca cagtagacaa tcatccaaaa 360
gtagattgnt aaccatttcc atgaagtaga aatcaccaag ttagacttcg aatgacatgg 420
cttaattctc ctctgacagt atacaaatct aactccatat gatttgttca ggaccaanga 480
cgcatTTAAC atgcctcctc                                     500

```

<210> 674

<211> 296

<212> DNA

<213> *Ctenocephalides felis*

<400> 674

```

acaaatttta gaatgttta atcattaagt ttgaataaat taccttaaag atgaaaattt 60
agctaacatt gtaaaagcat gtttgttgtt aatttttta ataacgtatt ttagatatac 120
ttttcgcttc ttaacaagcc aaattatgaa tgattctcat gtttagaaac aactaataaa 180
aaataaactc agtgcaaaca taaacattaa tatagacaga ttaagtagat atatcccttc 240
ataaattaat tgatgtcatt cattattcag ataacacccc tagtcaatag gtttgt      296

```

<210> 675

<211> 461

<212> DNA

<213> *Ctenocephalides felis*

<400> 675

```

cataataatc ttgcaaaagt aatatttgaa atgaactata ctacaaaacg aaacagcccc 60
cacttcctag aactaactcc atctgaaatc gacggaacat atcacttattc attgattagt 120
ttgttttatt atattttacaa atatagacaa ttatttttgt atggaatgaa acgagtttac 180
acatacgaag caaacatgct gaatattaaa aaatatttta ttttaagttca ttttattaat 240
cttgctgatt ttgaagaaat gaatctctca cattcataat atgatttttc ataaataaca 300
acgaaataca tattgttgtt taataattat ttttaacatc agaaccacat ttagagttaa 360
tttataattc ggcattctatg ttatgtcgaa attttaacac gcagaattta atgaaatcgt 420
aattaactgc tcgatgcctg acaatatcta gcgtctcaag t                                     461

```

<210> 676

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 676

```

acttcccaaa agttgncagc gaaggatcct acaagggcga cagcagcttt ggagattacc 60
aatcaagag ccgnggaatt ttcaacgtca ccatgtatga tgtgacagtc acttgaaaa 120
tcgaaggagc aactgaagaa cgcgatggag aaacttacat gcgcacaaa cacttccgtg 180
tcagcccaaa agttggtgat atgaaaatct atgcaagtgg cttataccag atgaaggact 240
caataacgca gccgntgcct tcatgaacca atactggcaa cctgccttcc aggcactttt 300
accatacgca gaagaacacg gagaccaa atgacaaaac tttgtcaacg aaatgttctt 360
gagaatccca ttcaacaaat taatgccagn tgaataaagc caaaatttaa atatgtatat 420
aaaaaacata tagtaaataa gcaaaattat tttgatattt tttgnggatt ccaaccaacc 480
aaattctatg taggttggat 500

```

<210> 677

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 677

```

acgtatacta tactctatac agctgtatgt gccacacacc aataatgtat caatatgata 60
caaagaaccg atttgtaaca tttttgtagg gcctttccat gacgtcacgc acatgcattg 120
aatgtttttt ttgttcattt agaatagtta ggaaggtagc caaaaactcg aatccaaata 180
tttatacgta tccctttttt ttagtttgaa ttttgaattt gtatcaaatt gatactaggg 240
acggatgcgg gttaaacaaa aaagatcgga ttagtgatag tttcaaattt agcatggaat 300
cattcggatt atttcctact attaaagacc ctacgagaat aactaactct tctcatatt 360
gtattgataa ttttttcaca aatatatcta cggtaaattc atgtgtaatt aataccggtc 420
tttctgacca ttatggaatt tcgctctctt tgcctaatac tactaattct acttcccatg 480
tgnatcgga tataaaagaa 500

```

<210> 678

<211> 475

<212> DNA

<213> Ctenocephalides felis

<400> 678

```

acactatgat cagctcaaaa aataacttga acgcatatga taaactaaac cgnactcaaa 60
attttaatta attaattata gattattggg tagatcttta tctataattt aataaaatac 120
aacttatatt tctgaaagca tagcactgaa taattatctg acaatgcgtt acccatgtag 180
atattttact aatgggaaca atttaaata ttttaatttc aaaattagta atgcaaata 240
ttgcatgttt tgtgtttatt ttttaatttc gggattaata atcctggcag ttatttagac 300
aataatgctc aaaaaatata taaattacaa cttgtttcat tttttttta aacacatctc 360
tacataaatt aaatacgtaa aatataaatt acatattacg aatatatttt gtataaaacc 420
gacacgccac tgatggcatg ntggtaattc atgacattaa aatgcacccc ggggn 475

```

<210> 679

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 679

```

acaaagntat taacataatt ggtttaacaa ataattntaa atatgatnat taaacagngc 60
agggnnngcag ntaaaattat gccaaagtga tggtaatctc gagttcataa aatttaataa 120
atgatgcngt catatttgaa gcatgtatga aataaaaggc ctttagagta aatacaataa 180
tcaaactttc tatataggnn acaaaattga aattaaatat tcaaggaata tttctactcc 240
tagtagatgc gtcattttta caaaataaaa aacattatta attaataacc ataataattt 300
aaaccattat tctgatatcc taggntgcat tgcaatgtca aagctcttat cgctgatccc 360
cgagaaagct ctttaataata catatgagct tgatttctcc ctttgcgntt tataagnaaa 420
tttcaaagat ttgnttcgat attattaaca tttgcaatat ttatatttga tcacaaatta 480
gtgctaaagg tgaaattatt                                     500

```

<210> 680

<211> 475

<212> DNA

<213> Ctenocephalides felis

<400> 680

```

cagcatattt tatacgcaat gttacttaaa aaaatgttac atttttatat aagaagaaat 60
naacattatt atttattagt ctgatttcat ttatcttaat acgatattcc tttaaaaaga 120
aataattatt aatttttaag acaaatcaag ataatatctt gacacttggt tatacaagaa 180
atcgacttaa gatgacattt attttcaggg attatgagat ttaaaattta tatgggtccg 240
aaaaactcag actcaagaaa cattagtgtt aattgaagtg attgcaaaaa aattaaaatt 300
gaaaatcttt gaattctgat attttggcat accttaggaa aaattgatgt atgtgtgtgt 360
atgtttgtat gcatacgcg atacaactgt tcgttgacga ttcgcacgga tcaaccaatt 420
ttaattggcg gcaaaaacga ttagacattt gcacatcgag attttaataa tatgt      475

```

<210> 681

<211> 387

<212> DNA

<213> Ctenocephalides felis

<400> 681

```

acacaaaata tgacgagaca cgactttaat aaaaacatat tttgtgcaca tatttttatt 60
caaagattta ttttgaagtc attgttaatg agagtaattg atagtgaaga ttttagcttc 120
ttcataaaat cagataaaac cggtaaaatg aagtatcaag aattgaagaa atttttgtaa 180
ttggcaaaatt caaactatgc actcaaattt tgtattttaa aataaggcgg catcaaaatg 240
taattaaaaa tttcataaat gtttgtaaca tgagtgcatt ttccacagaa tgtcccatac 300
aaaaccggca tcacaaaaaa gacatgtaag acataactaa cataaaatac cnttttctat 360
gagacatcct cataactctc aactcaa                                     387

```

<210> 682

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 682

```

ncctattaat gttaaaagaa taataatnan gggtaggttt taccgatggg tggagaaagt 60
gtataaatcg ttttngccga tggatttggg taataaaaag aaaactgcac cacctgccac 120
gtntttataa tanttctata atctgcaata aaaatcatct gccatgaaat atgctccaaa 180
ataaaaaacg agtatatcgt gaaaaaatat tttgaaagtt ataacaaatg cgttgcaactt 240
tctagtttga ttagttcatg taaaaataa ttattcacgg catttcaata catgctccca 300
atatatttca aattattcac ccaataaga aacacnatcg tgacaattgc caaaccattt 360
tagataaaat atgtaaatat atcaaatgat cattatatgt cttacaaaag tttataagtt 420
atcaataaat aagaatgant ttatattatt atatctataa ataagtagac gtgtntatcc 480
accaatgaat ttcaattatt 500

```

<210> 683

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 683

```

acttcccgtg acgtaattaa aaattcgagg aatattacat gttttcaagt agattattat 60
aaatactgta acttatatat gatcacggaa aagtaataa acaaaattaa tcaatcgaat 120
ttaaatctga ggacattgta taatatttat aagaattata taaactgaag tgcgaattat 180
tttgaatatt cagaacaaaa tttggcaata aaaaaaatcc aaaatcattt gtttcgtcaa 240
cacaagcaga aagttttctg aatcattcaa atcggatgct tagttctctc aaaaactgcc 300
atthttctgca catttagttt ggtatctaca aatcggctgg acctgtcttt gccaaaaact 360
aatttctttc tatttctatt ttctgcactc ttttctccgt atcaccgaaa cggctggacc 420
gacttttgcg aaaaactaat cagcacattt ccctatcaat aggaatcgaa tgttttttga 480
acaattcaaa ttggtgatcc 500

```

<210> 684

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 684

```

taagtttagg gatttatttt gttaatgtca ggtagaagaa gatagatgta tgaaaggng 60
taaggcttga acaatatcaa aaaaattgta attngtattt ttcagacaat agctaacttg 120
tgaaaaaaca ttttttaact ttcccgtagt taatacgata gcattcagat tcattttttt 180
tcatcttctt catcagatta tttagaggga tggccagatg ccantttttt gagaccttta 240
ggtcttttag tcacctttta caattaaatc tttatgactg tttttaantt ttttttctaa 300
attctcaaat caatcattaa taacttgcgt aaaatttatg tctcttacca aatactctct 360
aaaatactac tacaataatt tcatcttaaa aaagattgct tataaacttc gaaatttcag 420
atatatttta aagaactata tatataattg catatgttct gcttacgctt tgagcaaata 480
actaacatca gtaatatata 500

```

<210> 685

<211> 343

<212> DNA

<213> Ctenocephalides felis

<400> 685

```

caaaantgcg tctgagggac tgnntcttaa tttattcata atatcaaaat agttattnat 60
ttgcaaattg ntggtaattc actcgcgttt gtttatttat aattatatct ggntttcttc 120
tcgatttgct atttaacctn tagcagcctt ttgcactttt gctgntggta ataatttcct 180
atccgtaaca acacaatggg aaactgggaa taatccgtcc ttaagcacac atacgcaatc 240
actgtgcatt tcagttctac taatttggtc taccaaactg tttgatacta cactgatgaa 300
gttcttggtt tgcttttggg ctttagcgtg ttggaagntc tgt 343

```

<210> 686

<211> 436

<212> DNA

<213> Ctenocephalides felis

<400> 686

```

acttcgtaat gctcaattgt aaccgggttt gtattccatg ttagcatagc acttgtgctt 60
gtaacagact taattctaag atttatcacg tcagttttta tattaggctc acttgtcgtt 120
atattaattt cagcgtaatc tacaacatca ctttctatac gctcggcagt atgattccat 180
aatcctattt catttttaat tctatagcta tttaaaatag ttttaggaat agatttagaa 240
aaaaatacгаа ttctgtaagt cttcaaaggg tgtaaatcг ataaagatat tttagtatca 300
gtaaaatatt catcccttgг ttatataca gtattgcggт cgcaatcgaa acattttatg 360
ctataaacia taatttcatc attcggtttt cttgaatctt ttgtagcatt agcatctttt 420
ggttgtccat gtgagt 436

```

<210> 687

<211> 403

<212> DNA

<213> Ctenocephalides felis

<400> 687

```

accgttcagt gcgtttataa tgaatattat acagaagtag tattaagata gaattttttt 60
ccgcggaccg gaataatata ttaaggtaag gcaaggcata atatttataa gatacacaag 120
acattttgcc ttgaatatta atacatataa tataaagatc actatcaagg tgaggcatat 180
tatttattaa taacttatta ttattttaac gagtttttat gttttcgttt taggggtgta 240
tagcgaaact ttttcaagtt atcaagttaa taatataaca atattaaggt gaagcatatt 300
aatttatatt ataagataca aaataatttt ttacataat tatacttata ctaatttagc 360
cttattaaat tttagttttt tatttttaga atatttcott tgt 403

```

<210> 688

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 688

```

acacatctat atagtaatta gatctataat tataaaattt actcaattaa ataattatgt 60
aaatggtgca tattatcaag atataatagg tttaaattgt gctagagatt gtcggaatta 120
tactaattga aaagtcgatt acttttttatt tttatccagg attaaaagta aagtttttcc 180
atagaatatt caaaaaactt ttgcctcaga ttacccttac aaaagacatt tgtaaacaat 240
atatcgtttc ttcctaatt tatatattaa tagatcgatt tataataatt aataaatgca 300
atattggatc gagaactaac agttatagaa tttttactaa gtttctgtta gtattttata 360
atgtatattt cttataaatt caaactgata gtatctatta ttttaataaaa gttgaaaaag 420
tgactaattt gcattgtgtg tggcatactc gcagggtgcaa aataaattta gtaaaatttc 480
aacacctgtt tatatatcaa                                     500

```

<210> 689

<211> 450

<212> DNA

<213> *Ctenocephalides felis*

<400> 689

```

actcaatata aatagaagca ttattgttca aaattaattg cactgagtgt tcaaccgcgc 60
gtcgaatttc gctctccgtt ctgctgatgg acgctattgt ggcttataat tctcgtggct 120
ataataaatg attattatat agaaattcag aagagtgtct cgattcgatg cgcatattac 180
tctttgagac ggtccaacgc gaccctttaa agtaatgcct ttcacaatag ggatgcatta 240
aactaatctg ggctgaataa aatattttta cagtttggga aaataaacta ctaaccgata 300
attatctaca cactatgaaa tatttaaaaa aactaaattt ttggcacttg taaaatgaat 360
gcataattgt tcathtagtg cttttttatg cttaataatt ttgaaatcta ttagtaatga 420
catgacattg tgctttcaga caaattgctg                                     450

```

<210> 690

<211> 351

<212> DNA

<213> *Ctenocephalides felis*

<400> 690

```

acattgccct tgatgttgcc gatgttgtga ttgacgtgga atttgggggt cgacagaggg 60
tctattgggg gtatctccag gggtttgtaa ccgtctttga tagctggcaa gatacttttc 120
attgattcct ttatgcattc gttcaaattg gggtcgtttc ttttgcaaat cttgaagaaa 180
tccggtaagg gtgcttcggg gtcgacgaga gctttcgctc ggcagagggc ggtcgtcgcc 240
aaaagcacia ccatcgccgt catttgtccc attgtaaata aataattatt atgaatagtt 300
tcacggcaaa tcgtaatctc aattagcaat acnatctgct tcctggttgc t                                     351

```

<210> 691

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 691

```

accaaaacct agataacata atttatcacg aataaattta ataaaatata aatataaata 60
aaacaataca atacaaatat ttaattaatg catttaatta tatttagtct tatttgtaat 120
gaaattagga aatTTTTtatt atactctacg gaaaggtaat taccctatga gaagttaaac 180
tcctcgagtt cttcgaactt taccacacaa acttcatatc ttatgtttgt tcaaaaacta 240
ctatttcgca ataaaaatca ttttaaaaag aagccaaaaa cccaactcca attcgttgtt 300
tcaaagggtg cgaaattata gtaatttatt cgccgcgtgt ggcacaaaac taagttttaa 360
aaaaataaaa cagattcttc catataaaaa ttggtctgga taatgacggg cgccgatctt 420
cctcttggtg ataaaatctt ggtgaacttt tgccaagaaa gtcaataaaa cgccaattnt 480
tttcattcgt atcattatta                                     500

```

<210> 692

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 692

```

acacaatggc aagtaattct tatacataat cagttttcat atatttaca tttcgtatat 60
tgatagttat agatatttta gtttaattcaa tccttttcag ttaaaaatca aatgaactag 120
tttatttttag atcacatat ttacaatatc acattcattt ttttatgttt ttcaaaaacta 180
cactcataaa attataaaca ttcataaaat tgctagaata aaaattgtta aatatgtaga 240
taaactctcg tttctaattt ttacatcttg attaaaataa aaatagttag ttcacaatta 300
tttgtaaatg gaattaaaat aattctaata acagaataaa aacttttagg taatataagt 360
cagttttaca taaaagttaa aatgttatgt tgctatatta tattatatat attacatcgc 420
ataccataac tacattttaa cacaaagtat tataataact agtattaatg aatactaaag 480
tgnattatgc ataatatatt                                     500

```

<210> 693

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 693

```

aatctttggt tttcatggta atatatctag gtgaaaattn nmgcaactt ttagacaatt 60
tttaattgac attgctaatt aattaaataa ataaaaatga cttaaagtta tattaataat 120
taataattac acaaaatagc gtattgagtc ttcttctgat ataactttcc aaggactaca 180
atattacatc ctaggatatg ataaaaatca gtgatgataa aatggttggt tgatcaggaa 240
tcatagtttt gttttacatt ttcaagacat taaggtgggt gctagaatag taataataat 300
ccatagcaga aaataaaaaat tatacaaatt tcttttagtt cttcttatga gtcttcaa 360
agaaaccaat ttatcaaaac caaatttttc aattttcgtg ttacacacc gtatgagaag 420
tgacggtaag tggtcctcag gaagacgtnc agaagtagtg gagctgtagc tggatctgta 480
gtccttggtc atctcnagtc                                     500

```

<210> 694

<211> 434

<212> DNA

<213> Ctenocephalides felis

<400> 694

```

tgaataanta ctagtnaaac ttannttttc gttgttaccg aataaatacc tgggngagna 60
nntanngtaa ttacagactc ctttttatat aaaaaattaa aaatttagtc gaaatttatt 120
tatnttgga natctatact tattttatgn cnnttttaa tatttatntt tagaacgttt 180
gcataattat agttaccann ttggaattac ttataccaga antaanttaa aaaaaaacan 240
ttcagtgect tatgcaagtg gnttataagg gngtttatgt aaacagnaaa atatgtgcaa 300
tatatcaaac taattatctg gcgtagagaa ntgaacagtn ttctgggcaa naattagtna 360
acntttgggt tgatatataa accaatagag gnttatcttt ttgtgtcata taggtggaga 420
ctcgcttgaa aagt                                     434

```

<210> 695

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 695

```

tcttgaatta taagtgatca ttatganttt tattattgtc aatatttggg gggataaat 60
tatgattaac catatgattt agaattttat tctcggcgt atataaatgt atatttgngt 120
aaatnttgaa ttctaattta agaacaggtt aatantttta ttttattgtn ttcattaaaa 180
ttcctnaat tccgtataag catctttacg actttattca gcgattnttc ctattttttt 240
tatcagctta taaatgtcan ttcttttgaa aagtttatat gattactttg aagtgattha 300
tcaatatttt cttaaatcat caatttttct ttgaaaatc agggctggcg gaaggcgng 360
tctgctaggt ctgcaaagcc ttagggcatt atataaatat gttgacgagt gcatataaat 420
atgtctgaaa aaaatcactc tgcgtattaa ttaatatgga ttaaataact taataatttt 480
taacttccga tggnnagtta                                     500

```

<210> 696

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 696

```

tanttcttat acataattag ttttcatata ttacanttt cgatggngg ggngttatag 60
atatttttagt tnatncaatc ctttcagnta aaaatcaaat gaactanttt attttanatc 120
acataattta caatatcaca ttcntttctt tatgtttttc aaaactacac tcataaaatt 180
ataaacattc ataaaattgc tagaataaaa attgttaa atgtagataa atcctcggtt 240
ctaattttta catcttgatt aaaataaaaa tagttagttc acanttattt gtnaatggaa 300
ttaaaatant tctantaaca gaataaaaac ttaggctaa tataagtcag cttacaataa 360
aagttaaaat gttatgttgc tatatttatat tatatatatt acatcgcata ccataactac 420
atttaaacac aaagtatata atacttagta ttaatgaata ctaaagngta ttatgcataa 480
tatattttta atataaaaat                                     500

```

<210> 697

<211> 454

<212> DNA

<213> Ctenocephalides felis

<400> 697

```

acataattct taaataataa aatgtgtttt ntnttttaaa ccaanaaaaa ttttgggggg 60
gntttntata aaaaaaatna cacttatttt ttatttatta tttcaataat taattaatta 120
ataatatacc aataatattt atattttatc agaaattaaa taatttaatt aaatattgac 180
tataatctag atgtnataaa ncaaaattac nctttacaaa gtcaattntt taaaattgaa 240
aaattttnat ttcctagtaa taaaatataa aatcgtagaa ataaatgntt gatagtggat 300
catattggat aatatatgct cattataattt tattatataat gtgggctctt taggcaaatt 360
aaaattctgc ggcaaaanca tattcatcca gcaattcgcg agtttagaac ataattattg 420
aaattatata taacattttt aattcattca ttgt 454

```

<210> 698

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 698

```

gggggntgac aatggngtgt aaanaanagc atgtatatan agtnactaa ttngatctat 60
agngagnggg gnggngaaat ntactggnaa gtcgccttan aacgtngnga ctgggaaaaa 120
ttctggngtt acncaattta anagcnntgg agcanaattn nacttttnat cagcntgggn 180
aaatanncgn anaggtncgg nattnatag nnccttccca atanntngcg nanatnttga 240
ttggtgaaat gngatgtgtn tntgtagcag gctcattaag cagcgngann nngtngtggn 300
nattnttnna ntnggatact cnttatactt tgaaaanant ccttanagca tnggtnttaa 360
nannnttctt tnattatntt tnaaggtnaa ggnttaaaaa gcttanannnc gtntatgttt 420
naaaanantt tgntttcntt annngagant aatttatgag tnttatnngn ttntagatnt 480
nttaaanann tnaattatgg 500

```

<210> 699

<211> 436

<212> DNA

<213> Ctenocephalides felis

<400> 699

```

attatatatn tgcatgttaa tttnaaataa cctgtctgca nttgnaaatt ngggngggtt 60
ttcgttttaa atggatagtt atttttgtta ctcaaatggt ttatggagaa ttncgttttt 120
tggatatgtc gctttatcaa tggcatattg gaaaaaaatt taaaatcact tatgtttaga 180
gaagaactna gaaanaaaaa tattatgtta aacagcttct ctgaagtggg atataaattt 240
ttcaaaagca tngctgntta ttgaaacaga agtatcctat gactatgttg caagggattc 300
agttaattaa actcagggtca aggaatacga gagtctgaag atcaatttng aaaaattggg 360
caaaataaaa atatttcaaa agctagtaga aacatctgga agataataga aacgagctga 420
ataagcactg catagt 436

```

<210> 700
<211> 225
<212> DNA
<213> Ctenocephalides felis

<400> 700
cttattttact gcagcatacc atacgttgaa gatttatatt attagtnttg ccaaaatddd 60
gttagaagaa aacatttttag tatcaggctc atccctacac tccttcaacc aattctttac 120
gaacattaaa tccccacccc catccaatct caatactaata gtagtatatt ctgntttctg 180
taatgactgt gcttttcaat atattggaca aacctcccaa tatgt 225

<210> 701
<211> 500
<212> DNA
<213> Ctenocephalides felis

<400> 701
ngctaaatgt gcaaaaatga cagagagAAC tangctgtcc gatttgaatg attcaaagaa 60
gggggggggc ttgtttcaac aaaatanttg ctcttggaAA aaaaattaaa ntttttattt 120
tnaaaaaa tttttntttg tatatcgaaa atanttcaga ttttaatttt gatttttggc 180
taaagcnttt aaagctcact aatatacnnt ttttnatacc tttattcatt atattgtcaa 240
tcaagactta taaagtctta taatacaaaa ctgcttgctt agataataat aagaacaata 300
aaataaagta aacaaagcac gtnatangta gtagtantta agaaaccaaA cgaaanttat 360
aaantgaagt aaaaaatana aatataantg aaaaaagacg aatatacttt aaataaatan 420
attataactt tgcgattaaa nttaaatant tcttatatat attaaacaat ggtacagtat 480
ttatagtaat ctatttAAAA 500

<210> 702
<211> 494
<212> DNA
<213> Ctenocephalides felis

<400> 702
catggcatcg tgccctaatag caaattgctg gaacttcacg caccgtaatt aaaagggggg 60
ngaaataaaa ataatacaata actgttttaa ataatttcag aaagatcatc ttctacatat 120
ataaaaaataa gtcgggtttt ccttcctatc gaaataactc cagaacgcac gaaccgattt 180
cgacaattta atatttcgct ggaaaggtaa caggctccgc aagggtttata gctaagaaaa 240
ttagttgtgc atggcatcgt gctttaatgc aagctgctgg aactcccgcA ccgtaattaa 300
aaattcgagt aataaaaaata atcaataact gttttaaata atttcagaaa gattatcttc 360
tacatatata aaaataagtc gggttttcct tcctgacgaa ataactccag aacgcacgaa 420
ccgatttcga canttttgta ttccgttgga aagggtctncg gctncgcagg cttatagcta 480
agaaaattag ttgt 494

<210> 703

<211> 499

<212> DNA

<213> Ctenocephalides felis

<400> 703

```

caataaagaa ttggatttan attatttaca aggtcatttt ctctattcng gngtttgtat 60
gactccccgt aaacaagatc aagacctcct ccgcaggat atcatgtatt gaagagaacg 120
tcctcaacat tctcgcagca tctttagttg agactagaga aaatgcaata tcagaaataa 180
gacattttatt gtaattaaaaa tttattaaaaa tctatagcat acaaagtatt aaaattaaaa 240
aagtttgacc agcaatggca tacacattac ataataaaat tgcgttaaaa ctgacaatca 300
aattaaatca attattcatt agcggagatg aagaactcca cctttttagg tttgaaaact 360
tcaacacgaa atttgacgag accagtaaag aattcagact ggaaatttgt ttcagtcaaa 420
cagattttgt agttggcagc attttcaatt tcgtctcatc atccaagaaa tctccatttt 480
ggaagcacct gtgttgtaa                                     499

```

<210> 704

<211> 376

<212> DNA

<213> Ctenocephalides felis

<400> 704

```

aagtattgac gaagttaagc acaaattact caaaaatttg ttaagaaaca tattngtttg 60
taattttatt ccaaaagtat atacactgga gaatataatt tcaaaattat aattgtttat 120
cctgcatagt aagtcctgac gagctcccaa aatatgacga ttaatattat acttaaatta 180
aatatacatc gngctgtcgg caaagttaag tacaaattac tcgaaaattt gttaagaaac 240
atattttttt gtaattttat tttgaaagta cacacaatga aaaagataat atcaaaactg 300
taattattta gtctacccgg gacgccctga agagctcctc aaaattcaca agtgcaatat 360
aacataaatt aatagt                                     376

```

<210> 705

<211> 118

<212> DNA

<213> Ctenocephalides felis

<400> 705

```

ttctgtataa gtaatttggg tgtaataatg ttcagtgtta acgaacnggg tgagctgcat 60
gagcaatgct ctaccaact gtaaaactct aaatgttggg aattcgaact acgactgt 118

```

<210> 706

<211> 289

<212> DNA

<213> Ctenocephalides felis

<400> 706

```

taaagnttag tttagattta aattcattta acttgnattt caatgntatt attattgcaa 60

```



```

aataaattct tcaataatgn anatcaacaa atttcctttg tgttacaaaa tttgnatgta 120
ttttttaact ataataagtc ttcaatat ttccaaagcagt atgttctaca atgnaagtaa 180
tttaaaataa gtattggtn aaaattaaaa taaatgaaat aattaaacaa taaatgcttt 240
atttttaatt aggaaatcan atcaccagta tcattcttaa gaaaaatgt 289

```

<210> 707

<211> 202

<212> DNA

<213> *Ctenocephalides felis*

<400> 707

```

aaataatatg cgctcgaatt gaaagaaatg cccgcgctcg tccgggattt gaaccgcgga 60
cctccgcac cataaccgga aatcataccc ctacccaac ttttgattt gccacttacg 120
tttaatatct aagccgaaat cataacccta gaccaacaag ccacgagttt tatccagtgc 180
atgtttgtgt tggaaccaat gt 202

```

<210> 708

<211> 300

<212> DNA

<213> *Ctenocephalides felis*

<400> 708

```

ttggtatagc ctttccagaa ttactcatat actgngaaat acngnacngn tgtaaaacttc 60
ttgcaacaaa gcataatgg aaatatgttt tctctttaa tgactcttta aattggcggt 120
tgntgaacta tactttatct gctggntgca tactagtga tttcaacta gttgggtcaa 180
tgcccatcac tagttaaact catttatgat attgaaaaag attaaaagtt gattatacta 240
aattattata tagccctcgg ctattttcgt gaatatttag tgagtaaaag cagcaaaagt 300

```

<210> 709

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 709

```

acattgatac tactttgaca tgcggaant nttttctcag tttgttgntc tttgatngg 60
gggngtcac aatatttact tattaaataa ttntgcgcta tatctaaatg tatctttaa 120
attaatat ttgcaaattag caataactat caatgagtag atctgctcat agtaagtagt 180
atatattttt atatcgaat ttagtgtaa tgaccgtttt aaatttacag ttctagaata 240
ttaacgagc tttgtgaaca agggtgaaag atcaaaataa catcactttt taaactgtaa 300
cggtgacaat attatgttga aatgatcaaa ttacataaat gagtcagcaa aatttggtgc 360
taatatattg ctcggtttt tttgaagaat ctagtntata tttggtatat atagatatat 420
agatgtgncg tatacctata tgtgcgtgcg tgtgtgcaa attaacaata tattngcaa 480
agatatgtat atgccagtct 500

```

<210> 710
 <211> 425
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 710
 accaaaatat gggttaattat tatatatata atttttttta gttaaataagn ttttgtatgc 60
 gngngnaaac atgctttgtt nggaatgcna aaatagtga cacaagctt cattcngcaa 120
 acaaatagaa gttgtgtatt gacatatctt gatttcatct taccatttac ttaaattgtc 180
 ataataatat ttgcaagata catagcgaaa aaaatcatta gctatagcac aattttcata 240
 agttgttaat tcatgttatt tttattagaa ttcaaatttt atcataataa cacgattaaa 300
 taaaataagc acaatgattt tatcatgtat accaaaatgt cgcttgaagg taatatctac 360
 atcttaaaact agaaaccctc attaaaaata taataattag atttagtatt tgttgaaata 420
 gtagt 425

<210> 711
 <211> 500
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 711
 cttcgtttac caaaaaatcg ctaattttnt ttttacaac gtcaaaaaac tactcanggg 60
 gntcaaaactt tcataaattt tcaaaactaa actacttgct gtaaggcctt aatatttcag 120
 taagtcttat aagaccatga tatataaagc caaaaaagta tcatcggtt aaattttttt 180
 tcaacagtta attacaagaa aacaattaca tgaaatcttt aagcgctcat aacttttgaa 240
 cgatttatta taggatattg atgttcccag gtgaaatatt ctaaatcaaa agatctttaa 300
 tccagtataa aaagttttta gatactctt atcggtcgcg agatatacgc caaaaacggt 360
 ttcaaatttt taagtttgaa ttagtttaac ggctatagct cgaaaaatat tcatgacgta 420
 tatgaatgaa atatgcgtat ttaaaatatg tatctgatgg tgcaaaaagt ttgtaatagc 480
 tctnccgttc cgnatatttt 500

<210> 712
 <211> 499
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 712
 ctttgcttca aatatcgaag acatatttnt gaagaaaatc ttggcacaca ttgannngnc 60
 nctgcacctc gcatgannnt cacttgaata ctcttgatga aagagtgaga aatagaaata 120
 atcttcttgc aaangttcac tngcatggag aaacctgaaa tgcagtttat agaaatatat 180
 tccacgcagt gaaaccantt gcacggacta ataaacgcaa cgntttcant tacgaccgca 240
 nttcacaanaa aaccggcgct taaaantata ctaactattt atatgcctng gaacgntctc 300
 gctttaagtg cgaanccgca tttatcantt ggggcnctta aatgaaatct taatccagga 360
 taagggtcac taattacgca tgnaacaaa acagcaaact ggtgacgagc ntaataantt 420
 aaaaaaaac atnacaaccc ccggtatatg ttaancnaaa aatntanaaa agcctgaaan 480
 ttgggganaa attaaaacc 499

<210> 713
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 713
 ntattggctt agaaagagga anttaaatnn ttnnattact aantatatca attaagangg 60
 ggngnnagna ggngtggttag naataaacat tataatcaag gcgtnttgaa ttaaaagctc 120
 atattgntag aatgtannaa cgcgcnatac cttttctttt tttagacaaa aattttataac 180
 gtaatatant tatnttaaaa atgcaaaaaa tttttaaaagc gaaaaataaa caactaactt 240
 catatacata tatgtatata taaggatctt gcnagggcaa aataataaag attctgcaat 300
 aacaagcata gcttctgttc aataaccgca ttataaatgc cnntttgnta tttattacgc 360
 natattagca aaaatcacta tgtgcnnaa nntttcttaa ataattaact ggcgngcttg 420
 cttaatatct ataatanntt taacatcaac aataatgnnt anttactnaa gantttctaaa 480
 acanttatta gaatattcgt 500

<210> 714
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 714
 acgaattaca tttttgttat gtgtagaaag gtgtcaaaca nttcatctct tgatcagaaa 60
 tannttttct ttctagtaaa tggatccaaa angngctaag aaagaagann ttcctgagat 120
 tataaattct ctgaaaaaaa natacnnttc cnttatttat ataataataa ttatttagat 180
 atatgggatg acttctagaa aaaattaaag tggtcaggaa tggngncatt gaaagaaatc 240
 ttntcatcgg tatgntaatt acatcaaaga ttaaacataa ctntttaact aattcatact 300
 cctatcaaaa tatcttttag ggatcgatat actggctctt ttctacngac atgggtatct 360
 tggaaattga tggaagtaaa ganatggatc taaataatat gggcctcggc cgggacaccc 420
 taaccgnatc tgagatatca atacctggcg gcggtcgagc atgcattana nggnccaatc 480
 gcctatagng ggcgnataca 500

<210> 715
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 715
 actcatttta tatattctcg gngggataaa aatataatta attantgtng gccttctacg 60
 ggngtgcttt tagaaaaacc aaaatctggt gggggggctt tttgaccnc cnttttgagg 120
 ctttaaatat aattctttat tattatggaa aanataggtg gttnaaatca tgggnntaga 180
 caacatcggc ggttcattta agtatattat acattttggn ccatcgcacn gatncagtga 240
 ttaaaaaata cagtcacgct ttacaattaa atatcgcgag gtcgctaaaa ataaagccaa 300
 caaagctcta cgtgaatgaa aagncgggac ctgagaagcc gcntttaagc ttggaagcgc 360

gctggagtta ctgggattgg accactacac ttaaagacac attgggaatc caagtagtcc 420
 ccattagcta aacncttcaa aatgctacta taatggtgga nggtangctt ggctnggcgg 480
 gacnccttag cgatntnnga 500

<210> 716

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 716

actaaatgaa ttacaaatta tccgtatata tttanggaat attttacata tatggacang 60
 tggggnnntgg aagcttattt ttgntnttaa tattaactct tttatttaca actgtccagt 120
 aaaggacatt tagtaaattt aagnnnttac aatagtcgcg cgagaaggga cattgtatac 180
 tacattgtca tgttggaaaa aacaactcag tantcgcnct tcctttctat ataaaattca 240
 caatanttta ttattgaata attacttata aataatgatt aagttatttc tattnttttt 300
 ctccaggagag ttgatagctt acatccattg gcgcttaata aatgataaaa atgnataatc 360
 anttgatgaa ataacttcat acaattatta ttacannntt taatggaagc ttaatgaatg 420
 ataaaaanta taataaantg atgaaatact tcatacnata ttattacaac cnctttattt 480
 cattctacac tgggacgaac 500

<210> 717

<211> 363

<212> DNA

<213> Ctenocephalides felis

<400> 717

tatttatgtg attaaatgaa accttttntt tnatacctan ntttagnggc aaatgggggg 60
 nttngaata aaaaggcttt ctataaatct atcgtaattg ggtcatcatg aaaaaaatt 120
 gattccatat atactacnac caantcgant ngcaatattc acatatagct ttcgatatgt 180
 ccaaacaatc gaacatatat aatatttant tcatatttag gtgatttaat tatnggtaaa 240
 aagggtgtgg catgtttgaa gagatatgta tctcgctata caattaaata tccacattat 300
 tatataaata taattttttg ngcttattta tctttatcac tttcagcttt ctttccaatt 360
 ggn 363

<210> 718

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 718

ggncanttta ttntcatttt tatggataag nttntgaaa taaatagtca acagaaccnn 60
 gggngnagnt annnccttta ttgcttgaa atctatctat acaatagatt taaatanntt 120
 agttccngnt tataangtaa cngcnggncc gncttcaaaa atatagaata anttcgataa 180
 ggactagcgn ttgtcanntt tgcacaacaa tcagccatct cngtaaataat ccgaaaagga 240
 aaaaaangnn cgtctacgcn tnagcccaca nttctanatc gatttttaaaa atacaaaacc 300

gttcgaaaga tattgggtgg gaatganatt gattancctt cngnaaanat ctcttttatt 360
 gacagnttct tgngaataac tggcaaaaaa acncttgacg acnttatgaa actcctttcg 420
 aananatatt ataggctcaa tggatatcta aaatanaggg cctcacanac ggttgcttaa 480
 aanttataaa ggggaaaant 500

<210> 719

<211> 353

<212> DNA

<213> Ctenocephalides felis

<400> 719

aaacagaaaa atatcaaacc ttcatntnt ttcaatacat anttatctac aagngnnggg 60
 gggnggaggg nngngactac tacaatacca tcacttttg cttttaattt tattccaant 120
 acatactang agcngncttc nncgnctcaa tgcctcattg aatccttcgc acaaagttaa 180
 atcagatcgn ccttgtgcgc attgnaagaa ttgcatgatt ncccatgcgc aagggccagt 240
 agagttcttg gccttggtaa gcagnacttg cgnangcant ngntgagggg cttgggcagg 300
 tgctgcttca ctggaggaac caccagagaa gaaccagtta taccggnctt tac 353

<210> 720

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 720

aaaaagtcca gaacttccaa aatttttttna aataaaacct tcttcaaaan gcngggggggg 60
 gaagaaaaagt aangggggnc tcaaaaatct ancnttttgc gaactaatan ttgcagaaga 120
 ttcggcagca ttcacggccc ngccncanc ctttcagacc aaaactgngt tcattactaa 180
 aacantnatg nanttcacc atgttcaatt attctgaaaa tanttatgca ataaagaact 240
 gcanttcac cagattctat tacaatcagc tgctcctcgt ggaatctcaa taccataann 300
 cttatgnggc agaatgaagc gcgctcgan ataaatgaan ttacggccgg tatttacaan 360
 tttaactcga cantaattaa aacggattca tgnccgaga aacttggaat cttacatata 420
 aanagcggnn ctgngtttat ttcgactctt aagnaacntc attgcgctaa ccctagagag 480
 anatttatgg tgactnaana 500

<210> 721

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 721

actttgaaaa ttccaactt atttcatttc ttgnggcata gttatcaaca gagagacttt 60
 ctgggagaaa gagccgctcg gggcacgcag ctgttttcgc tgcttgatat tttctacatt 120
 gtttgagtct cttatttcat taacaagcga gttcttcaaa ggaaattttc gcagcttgca 180
 caattatatg atgtctcaac acacgacagt caataatctt cttgaaatta ttaacactat 240
 tctatcaacc gaaaatatat atttatacat aatattatat gacatgatat aggaaaaaga 300

atttttaaatt attttttcta atatagagta ggacggtgca caattcgaac ttaaggaact 360
 acatgacaac acataacatg tatcaaacta tctactatcg aactgtgttc aataaaatgt 420
 ttagttaatt tctaattata tcctttcata ctatttttct aaaatttatc atctgtcatt 480
 tttatcacat aggctgagta 500

<210> 722

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 722

acatcaattt gtcgctccaa cgagcaaata cnnacaagcc agcagtagac tcaatagaat 60
 gtcgagtgat ttcagatata atacactttt gattgatttc caatagaatc caggctcgaac 120
 attttgcaaa acaccattca atagaatttt gaattcggtt gccatcgagc caataatgag 180
 ttcgctgatt ttgttttaatt ttcgacggtt attgaggaat gtaagactg ttgacaaatg 240
 tgattagaat cttaactgat atatagttaa actatatcga atattcatac tatttgtata 300
 gacagtgatg tgctgacacc caggatttca cgaattttta ttgtaaattt aagttgccaa 360
 atatgcattt ttgtgggtaa ttttgagggt aatttattgc ttttgtttct atgcagagac 420
 aagaataaaa tgattcaaag cgtaaacacc aataaaatgc tactatatcc ttacttggat 480
 attcttattt ctattattgc 500

<210> 723

<211> 151

<212> DNA

<213> *Ctenocephalides felis*

<400> 723

acaagtgtta ataagagcac gtttgatgga tcnactgggt aatagaaatg ttcgtgaaaa 60
 tgtaaatgtt tactaataaaa tatatatttt actaatgcaa aacaaaatta tactaataaa 120
 aaaataactt atgtatcact tgatataaag t 151

<210> 724

<211> 167

<212> DNA

<213> *Ctenocephalides felis*

<400> 724

acgcattgtc taaattgttaa taaaaatgtt nttaataga attgttttct tagacagaca 60
 ttttaaatgt atttcgaaaa tattactgtc acatgtgaat ctgtgaaatg tgctcggttc 120
 attgccaaag tcacatgttaa tgtttgatac atttacagat ccctagt 167

<210> 725

<211> 381

<212> DNA

<213> Ctenocephalides felis

<400> 725

```

acaaccgttg gcaaatatca acttccacat catnacccaa tgttttatcc caatcaggcg 60
atgaatccaa atgattgaat tcattacact gttcaggctg agtgtaaaat aatgatgttg 120
gactttgagg cggagtaaaa tgatttagtt ccactttatc ataaatgcgt tcaaattctc 180
gtaaaagact ctcaagtgtct tgttgaataa aatctgtggt atcaaattgc tgaggaaatt 240
tggtttctcc gcttagagtt ttgttcatac cagttgtagt agacaaatcc tccagcagag 300
gcaaatccac tttctctccc agccattgag aaaatgcttc attagtaaag ttatcttcca 360
gcaagcacga atcagcaaag t                                     381

```

<210> 726

<211> 424

<212> DNA

<213> Ctenocephalides felis

<400> 726

```

acaaaattta tattataatt caaataaatt taaaaaaata ataacttgaa cttttatatg 60
agcaatccca tgttgaatt atgttgcaac ttttgaaag aaggcagcta aattaagtta 120
agttaattga agtttgaat tacgttgaat ataattttaa taccttttaa gacaaaacgg 180
aaactttcac atgaaacatg ctaaactcgag taaaggactt gtaagtcctc tgagaagtgc 240
aagcagcctt tacaataaac taccagacga actaaaaaca atgacagacc taaacagttt 300
caaaattaaa ttgaaaaatt acataagaga caaatgaaac aaatgagtta aaatccctat 360
tttaaatcta tattantnt gntntgtaa atattaatca caattnagta tnagttgtat 420
gntg                                     424

```

<210> 727

<211> 488

<212> DNA

<213> Ctenocephalides felis

<400> 727

```

acatacatat acatacacag acatccatth tntgatgta tgccaaaatg ttcagaaacc 60
ttcaaaacaa aaaaagatcc tgaaaaatta tgaggaaaat cacacccaac aaattgatct 120
tttttatgat ttcaaaaatt aataatacaa tattaaatta tacactacct aacttatgtt 180
ttaattaagt atattttgtt ataggtaggt aatagttttc gatctttgac ctaaaataat 240
ttttgaatat ataaaaatta tagaacatat gtgtaaatct tttaaaattt tgaagacttt 300
tttaataaat cgcaaaaaag tggatattaa atttagttta taatctttta gttcttggtc 360
gaatgttaaa ttaatttttg gcaaagttaa gtttccaagt catttttatt atttattaat 420
gaaacaatat tagctttttt ggtaagaaaa tcggcacttt ttggtaggtc aacatttatt 480
cttgtgag                                     488

```

<210> 728

<211> 290

<212> DNA

<213> Ctenocephalides felis

<400> 728

```
acttttcatg atttaattgt atattacctt antaactaat ataaatatat ttattagggc 60
gggtcaattt aaaggtcact taggcacttg tgattttcgg attctaggga tcaaaataag 120
atactttgct gaagaaacca cacctctaaa atgaattctg atgtccggtg cattgactca 180
ataagggttt aattttgaaa aacctctcag ggggggtccc agggtttgaa ccagaggcat 240
gagttgattg gccttctaaa gttagtcata catttggaag caattggggt 290
```

<210> 729

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 729

```
accgaactat acataatcca agaataacac anagaaaaat ggcagaaatt ttccaagtca 60
tngttcaaac tggttccatt taaaacaat ttgaagatat atcaaaataa ggttgacaat 120
atctgacaat gagtgccatt atctgtttt tattgatttt ttgcagtgtg ttatttctga 180
tcaaagggtt aaaaaagttt atcttgagaa tcttggttct atactagcac gttgtagaca 240
aagtaaatat ttcattttta tttaacaata ttaaacctgt gagataagcc aattaaaaac 300
tgctcatata gataatttat gatttcacgt tttaacaagt ttaaccaatc tattcgaaat 360
caataatacc tttaaatgta aaaaaatata aaacaaagaa atgtaactgg cttgatttat 420
ttgctaaaaa cagctgataa acggcaaaat tcttcgaatt tgcacttgat ctatataaaa 480
atatttcggt tttagcaata 500
```

<210> 730

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 730

```
acttcaagta taaccaacg attcacttcc ctntgtgcac tttggcataa atatccccta 60
aaatatgtaa aacaggaacc agggcaccgt gataatgtaa tcaaacgccg gaaaatgatt 120
tttgatcgta tccatacctt tatagcgaag tcgggaatcc ttgtgattat attttcctaa 180
aaaaggaaaag aagttctcgc atactgaaaa gaaaagtttt gtctgggtgt ccgatttcga 240
actttcaaac ttattcattc ggttaccgcg accgcgaatg aaatattatg atttttcttg 300
ctcttgctcg gaataagata gattgacttc gaatattacc ggaatataag ctggctgcga 360
gtaaatgtt tggtttgtg gcttttantt atcgataaaa tatgngcttn ttngagnatn 420
gttggaanct cnnnggtant nttcaggtcc catggntacc nttagnctaa ttattaattt 480
ngtagnncca ccaaaccatn 500
```

<210> 731

<211> 256

<212> DNA

<213> Ctenocephalides felis

<400> 731

```

attaaagtaa attaaatata aatgagaaat tgtccttatt aaattattca ctatctttta 60
aatgnncttt ggacattctt ttataaaaat tttaacaccg tttagttcta gtattcta 120
gtcagagaaa gtaaacaagc cgagtgtctt ggatttttat ctttttagtg catcttgatg 180
taagttagct tcatctttta tctgtataat aaatgatata ctactgaaat atatttctat 240
gtaattattt atatgt 256

```

<210> 732

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 732

```

acaacctggg ctgtgaaagg tgaacttgaa gaacgtgatg gtgaaaagta tatggttatt 60
aaggangctg atatgtcgcc agttccttca aatgttaata tttatgccac aaatattttc 120
cctgataaag cagtcaatga cgctttccta gtgaccatga atcaaaaactg gcgctcctta 180
tacaagagg cgctccaat attgagcacc ctctggggac cccaatcaa aacaggaatg 240
aactacgttt ttgaaaaaat acccttccga cgtctgttcc cagaatccta aataaaaact 300
gatagtgcga actgaatgct tagaaacaaa tatgtgattg taatgatagt tattagaaca 360
tgatataata tgtagaata gtggttaata tattatgagt atataaattt ttacagatgt 420
taatataagt atatgttaat gtaacaatt taatataaat tttgtattta tatttatttt 480
gttatatacg tgtaaaaatc 500

```

<210> 733

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 733

```

cgatcaggcg tatttcacat agaaaagcaa gaaagaatgt tatgataact gcatcattga 60
agattcttct tattataatt ttatttgaat atttttgatg caatattgta ttaatgcgat 120
tgtgatacct ttttacgtag aataattatg tggtgtctta atgtcattga tttaaaaagt 180
aaaaatcact gtcttattta aattagtttg attctactga tgacaaaatt actctcctct 240
gctaaaattt tatattactc tctgctgatt tttatattac tacttctatt ttatgattta 300
attttaattt gggttttaaat tagaaaagca acgacttagc ccaaaaatgg tctccactga 360
cgaacgaaat tactcttcgt caaatacaag tattgttaac actattttta ttctgagatt 420
atttttaaat ttgaatttaa ggtgataatg aactataccg acaagtttca gattcagatt 480
tcagttacaa tagaactcta 500

```

<210> 734

<211> 251

<212> DNA

<213> *Ctenocephalides felis*

<400> 734

```

actcttccca cagtgaagaga aaaagtttaa gttctattca tcggctcgtct aaggaaacca 60
ctcatcagca gattgaaact caatctaattg cacgaaataa acaccaagta tcatcatcta 120
acgctaccta cggttattgaa cgcccgagca aaaccgttcg acgcgataat ctgttaactg 180
gcggtgaatt ttatgggtcaa aaagattcaa ggtatggtaa tttttctaatt tgtgaacaaa 240
gtctaagaag t 251

```

<210> 735

<211> 229

<212> DNA

<213> *Ctenocephalides felis*

<400> 735

```

accagtgtta tggtatgggt atgttatacc gtttaaaaga cttcaatttc caatatagtg 60
ggagaattga gactcatcat ttataaaagc aattctgcat ttagcatccc ttatattata 120
aatatatatg ttttttggtg taaagagtaa tttaaaaaac aataatcaat attttttaggt 180
aaacgataaa tattagtata ttacattata ttaaaaaaat gtagaggggt 229

```

<210> 736

<211> 333

<212> DNA

<213> *Ctenocephalides felis*

<400> 736

```

acatacgagt atactaataa aatagatttt agaactaata gaatcttatt gcgatatata 60
tgtgtgattt tcattataat gcataaactt tggtataaac gagcatagtc atttagatag 120
tattcgatcat ataatacaat ttcttctgaa aattgtctta agcgattcct ccccttaaca 180
agcgaaagtg ctggaacgaa attactactt caaaacaaat ttaaaagata aggcataatag 240
tcgcagaagt tcgacaatga aaggtagatg aaatagaaat gatataggga aattaataaa 300
atcattaagt aatctttaa gggtagacatt tgt 333

```

<210> 737

<211> 197

<212> DNA

<213> *Ctenocephalides felis*

<400> 737

```

acttctcaca tgcaaagcga gcgctctacc aatagagcta cgcccccgac aagtgcacac 60
atattattcc aagattctac ggggttttata cttaacaatc actcacatta acatcacgaa 120
gacatgaaaa agtaagattt ggaagttacc aagatataaa atagtaatat ttggaagcac 180
cggggtatcga tcccgggt 197

```

<210> 738

<211> 354

<212> DNA

<213> Ctenocephalides felis

<400> 738

```

acagaccttg agatacgggg gcaattcttc ggcttgaata atactgaaaa acgtcacaaa 60
cgttaaaatc actacaatat tcgtgatcgc cataacgatg ttgtttctgg atgtgtctgg 120
aagtcaaagt gcgtgatttg aatttttggt gcgattttgg ttctgtatcc ttagataaaa 180
tctgcgccct tgaccgtaat gccaaattca agatgataaa ggacaaagat gtaagtcgaa 240
attatcactt ctagagcact tgacatccag ataaacaatg acaggcctgg aaagaatcgc 300
ggtttactta tatgagaagg atgcgtggct gatgtgtcac cttgtccttg gttg      354

```

<210> 739

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 739

```

actcttgaaa gtaatgataa agtatcagtg agaaaaataa aaacacagca atcaatatta 60
agttacaagt gcaaattgaa gcctgaaatt agctgaccag tattgaaaat agggctcata 120
atthttatgtc aagtcagtta agagaacaca taatctatta aataaaataa aattcaaaat 180
aaagggttaa ttccaccctt cttttaacac tgctaattgt agtttgggat cgactaatcc 240
acaacaaaag tttatgagta gcaaaaattg ctttttgata tttcacgaag aaaacatata 300
taataataat tgtgcgtata gtttctaaag ctaaaatacca tattctgtaa tcatgtatgt 360
aatatataaa aatattgttt tttaaaaacc atthtttttt aattttgaat tcgaacgata 420
tatataatca tagataaaca agtataaata ttggtgtttt ttcagaattt tatatttgcc 480
ccacggtcga cgctagcgcc      500

```

<210> 740

<211> 293

<212> DNA

<213> Ctenocephalides felis

<400> 740

```

accaatattt ttactcaaac ccatgaatga aatcaaagaa atthttcaagg acaaagaatc 60
tgacatacga agatcaatca gcccaaattc acaaaactata gaaagttaat tatacaataa 120
tcaaaattta aaaaaaatta taggtataat tgaaacatgt gctcacactt atgatcgta 180
agcacaatcg accaaagaaa ttatgtgtaa tttgtattta aactaaactg tatttaatat 240
atgttgtaat tacgaaactt attatacttt ctagtcaaat ctaaacaatgt tgt      293

```

<210> 741

<211> 124

<212> DNA

<213> Ctenocephalides felis

<400> 741

actggtggag ctttcgtttt ggtcttggtt ttactttttt ttataatata atcgaaagcg 60
 ctggacgctc cattctctta aaaactcaaa aactaaattg ccctttttgc tctttttccc 120
 ccgt 124

<210> 742

<211> 278

<212> DNA

<213> Ctenocephalides felis

<400> 742

accagatcta agttattttac agtgtaattct ctgtaaaaaa tgcacccatg aagttttatat 60
 cttgaatgta agttgaataa tgtagctatt atttgtaaaa tcccttttaa attaaaaata 120
 agacttggtt ttccatgtct ttatcaaaa atgtttcaat attgataaaa ataattgttaa 180
 ataatacagag tcatataaaa tgagtttcta gttttcttct taagattctg aagggttttaa 240
 taaaattttt aaaaaattat gcgcttttta atctgtgt 278

<210> 743

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 743

accatcactc catgagttcg acaaccaact agaaaagacc catcaaccaa ttgaaaataa 60
 attctaacaa ataaaaaat attaatattat aaataaaaata ttacctgccg tttttccata 120
 ggctaaactt atttcgttta aaaaatcttg cactgttttc ttaacaccat cacttgtaaa 180
 aggtgttatg agcctttgca gatatgagcc atcctaaaaa taagatcatt tatttaacaa 240
 attttattta gggagcattc tagtctagga gtcaattttc aactttctga aggagtgtt 300
 tgttttctcg aaaaaatccg atttgccaat tttatttttt ctcaacgttt caagtcattc 360
 tgaatcaatt gagaccaaatt ttgaaaaaat atgtgtatgt tttcatgtat gtgagccgat 420
 ttttcgtttc gttttctcaa aaacggttga accgatttta aactagtggg gcatggcatc 480
 ggccttatgg caaattgctt 500

<210> 744

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 744

accagtntgt gagatnaata aactctagcg tntttcgaga atatnngcta tgatctttgn 60
 ggggtaatnn actngtttaa taatnnccta tgcattacaa atgttaaaat gaaattatta 120
 tgtntattta ataagataca tanaagcaat ttatcttana aatttataa ctantctact 180
 aaatactgaa atatgaattt cctantctta agattttact aaatcactga tntctgaatt 240
 gaaatattcg ctgaaaagtn attataatgg acattttcac gtancaaang tatttaataca 300
 gtaattcttg aacattctca tttngcgtat atatttcac tataatantt acaaaaaaat 360
 atttacacat gccataaaat gaatgctcca atantcattt ttatctncc tatntaattc 420

ntgtgtaact ttatggccct tcatttgtat tattttttaa catgcaattt naaatcataa 480
nacttgtgtt nataattnat 500

<210> 745

<211> 464

<212> DNA

<213> Ctenocephalides felis

<400> 745

acattattgt atgaaaagca aattttatatt tgaactgttt gagttgatcc acagatttca 60
ataaaacttt gtaatcaaata taaattagtc agcaaaactta gcaattaaaa aattaaaata 120
aataaattta ttaataactaa attttatgaa atttcacata atttttggga tttatataat 180
gtggtatatt catatgaaat gattaacaga catgaccaac gattatttga tcacagaaaa 240
gcccagttta gaatttcattg tatggacaat taaaaaagt tttttttaat tttttatctg 300
ttattttatt taagattagt aatatgtaat gcaatcattt gaaattaata ttctttatat 360
tactaataag agataactta tatgctcata caaaacaatt tatctgttta acattttatt 420
caaaaaacgt aattaatgta aaatttttaa caaattgaga cttg 464

<210> 746

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 746

acagttgacg ttaatgaaat acctgcatat gaaaaaatga tccagctatt gtaggtaata 60
ttacattagg taaaaaacta gacaatttac caaaggttct caactttaac ttctgtctgt 120
aatgattatt caaataaaaa cctgcaaggc cacaacaaaa tcctgaaact gctgcaccgt 180
atcgagagg taatctggaa aatataattt gatgttgaa atcatatcat ttattagcat 240
tagatattat cattacactt ttgactgttc ttcccaattc catattaact tccactgata 300
ttggagagct tcgtcctcag ttagtcgaat agcatctttt ggtggttcac ctttagacct 360
tactaatgcc attatattat atgaaattta ctgctttatt cataaatcat ttgtgatttt 420
acattagttt ccagtttaaa agttaagcaa acaaatatat ttataccata agttttatgg 480
tactactttc aattttgata 500

<210> 747

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 747

acttttaaat tttttgttat ctaatttttc acattgtaat tcatgttgcc tgagtctctt 60
ttctaagttc tggcaggtct ggccaatata agagcaatta caatccaaac aatttacttt 120
ataaactata tctttctttt ttgttaattg ggtttcatct ttaatttttg aatataaaaa 180
ttttaattgt ttttaattgg aaaaagtaat acgaatattg tgttttttga aaagtctttt 240
tgataattgg ttaaaattat tgtcaagata tgggaaatta atgaaaaaag ttttttcagg 300

```

aacacttggt ttgccaggct cttccggttt cttatcaaaa ggttcaagta attttgcgac 360
tctattttta ataattggac aaattaactt atatggaaaa ttattgcaa gtaggatcgt 420
ttaactaat tttatgtttg tatcataaaa cagaggatca gataataaaa tagcgtgatc 480
tcaagattag aatggtagaa                                     500

```

<210> 748

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 748

```

actggttggt attgcttgaa tcgagaagtt aagaaaagca acttttgtat gaatttcagg 60
actggttctc ccgtcagcag ctggcatgc tggcctgtt catcaacatc tcgctagcca 120
taatgttctt caagttgctg acgtagcggc gccctatcca caacggccct ttgtggccgc 180
catgatcaca ggcatagggt cattacagtc gtaagggaat aaatcaaata gactttatta 240
acgaccagca catgtgacgc acagccgcgg cactgttggc aataatataa tcacaacaaa 300
aaataaatgc aagaaaatca caaaaaagat tctagaatcg atcgaattct tcaaatcgga 360
agaaacgaat tcgccacgaa accgcgtgac tttggttttt catttttttg gcacgcaatg 420
gctgaaaggt atcggatgcg tccagataaa tttgtcagtg ggcgttttca gtttctagtc 480
aatcgctgc aggaaaagct                                     500

```

<210> 749

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 749

```

acacccaggt ttgaaccggg gatcactaga tctgcagtcg aatattctac cattaaatta 60
tgtccccttg atcggtgaca ctggcgaat agcaaatact ggcaccacat cacatttact 120
cagcaaatag ttaaaaaatt tgtaatactc ttaaagcaaa tagcaaacgg tagcggtaaa 180
tcaaattata tcagctacca atgtttttta taaattcaaa gtctcattta ctctacaaac 240
atcgtttaata gcgaaccctt gggtttgaac cgggttaata gtgcacacgc gggattgaac 300
cggggacctc tcgatctgca gtcggatgct ctaacactga gctatgtcct cacaatgtgt 360
gttactcagc acatagcaaa tacctacgcc acaccacatt ttctcagcaa gtagcgaaaa 420
ttcagcaata atcttaaagc aattagcaaa cggcagcggg atatcaatgg caagttgacg 480
ttatttacac tgatttcagt                                     500

```

<210> 750

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 750

```

acacggcttt gtagtagtcg taaaagaatt ccgggtcgaa gcgacagaag ttcctttcat 60
tgttccccgt aattttctcaa aacgcccttt tcctatctct cctgtatact tttgaaatgc 120

```

```

gtgcagcagc agcaggggtcg aagggttattt ctgcattcct cctacggcgt cgtctctgat 180
tggtattggg tctgcatgtg cgactagtct cgttccgagt ttcaacgttt tctttcggct 240
tgattgattt ggtaggtct tcatctctt tcggccaggt gtattaatag cctcaattct 300
ccggcaggac ttgacctgga attttgtcag ttttgagca agcagtgaag gcgtagggat 360
agttcttttg attgttgtt gtctgtcac gtctctcct cgcgatggag tcttgcttgg 420
ccggaagttg gtttctctg tatggttctt aaatcgcgca ggcgttctgc aatttcctc 480
tcatttcatt cacattcaac 500

```

<210> 751

<211> 423

<212> DNA

<213> Ctenocephalides felis

<400> 751

```

acgtatttca gaccgttcaa tccgggcgtt gtctcgtctt acagcaaagt aatgagcttc 60
tgtcccaatt tgcattacca taatggtatt cttttttaa atcgaaaga agaattattca 120
agaatccttc attgtatatg caaacaacaa taaatgttgc ttttcaatt acccgagatc 180
gggaatgaat atgtttcggc gcgaaaatcc aaatcaacga gtttagagac tcattattgt 240
tctgagtttc tgagcctaaa catcgaatta ataatttatt tgacgataaa ctgtcataaa 300
ttggtctaatt gacttcctaa tgccatttgt tctattagac cttgcaaac cagtttttgg 360
agaccgcgtc agtaaagtgc ctatatctt gaagataatt caaattttca aaaatcttct 420
cgt 423

```

<210> 752

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 752

```

acttatatat ctatttaagc acggaactta tatacgactg aaattcgagt tcaaatagaa 60
atctcgctct acatatttat atttatttaa ataattaata tgtttcagtg aaatgtttt 120
gatttttctc tagttgtgtg aacacgaaaa ttttaaattt tatgctttat tgtgtgtaga 180
tgctctgtca ctttcaattt gcaattttga agatttagaa atatagaaga tggaacatgg 240
ttttttagt tggtggtttt taaatataaa agcattgtta actttccgtt atagtaatga 300
acaaaaaatt aaaattgaaa atgtttgcat ttctagatgt tttgaagggt tctgaacatt 360
ttggcacacc tcagaaaaaa ggatgtgtgt gtgtgttttg tatgtgaatt tttcccacg 420
ttttcgggcg catggatcaa cctattttaa tggtaaaaaa aattcgattc ctattgatag 480
gacatgtgct gattcttttg 500

```

<210> 753

<211> 185

<212> DNA

<213> Ctenocephalides felis

<400> 753

actatagggga ataaataaat ggcagctttt tccttaggtc gccttttcaa cgtccggatt 60
 ttcattgtttc gaattataca tggcgctatg tatattccat actgcatgct cgcgagctct 120
 ttaataaaat attagtgttg gcacgttgca caagattgga ttcgatttga cacagcggca 180
 gttgt 185

<210> 754

<211> 376

<212> DNA

<213> Ctenocephalides felis

<400> 754

actagatggt catgaggaat atttagcgta aaggctgggt cggatatatt tgaataatca 60
 tccatatcta tcatattagt atagtcgggt cattcgaaat ttatttcggg tgttttgtaa 120
 tctctcaatt gcgtcaggtc ttccacatta ttacggtaat ataagatttt tcttatagct 180
 gaatctcgta ttctcttttt attatcaaac aacattgcta ataaaatatt ttccgagtga 240
 gcatagtatg cgttttcttt agcaacattg ttcacaattt gtcttaaatt cgagtctaaa 300
 tattgcgtcc agctaataaa ttataaaaat aatatactac catacaccac agagttgtaa 360
 tatttaattgt taaagt 376

<210> 755

<211> 492

<212> DNA

<213> Ctenocephalides felis

<400> 755

acttttacta atattatgat cataagctcc actttcacga tcttctgcaa gggtnattcg 60
 actgcaaggg tcgaattaca taatgggaag agcttaggta aaaaaataaa tataagtctg 120
 ttacttatgt ataaagtata aaatttttat atttctatga agttaacaat ttagaaatta 180
 acttactttt tatgaaataa gctattttct tcaattaaac taaggctttt tgtgcaatac 240
 ttttaataca atgttatatt ttttaatat tatgcagcca gttttgtaaa ttctcctaatt 300
 caaaagaaac cgcctcttgc tatggatatt gaaaacttta attgagaaac taaaaactaa 360
 agaaactaaa atatgcttca aagtaattaa agaagttttt tggtttatga aaaagtttat 420
 aattattttat ttagaagttt atgaaaattc atataagcta ataataagaa caaactaaat 480
 attattcgaa tg 492

<210> 756

<211> 360

<212> DNA

<213> Ctenocephalides felis

<400> 756

accaggtgag aaatggctga cttacttaag aaagccttag agtaattagg ttaatgnata 60
 ccaattgaaa agtagcttac cataacattg ntgcattttt tgaaataata agcgcgtttt 120
 atttaatat gtttttttaa aagaaatgct aaaagcttta tgtaaggaaat gtattgcca 180
 aaaataccaa atgaaatcta gtcaacattt tattatatca aatcattcat aattaactta 240

gtattcagac atgacaattg agctttgatt attgtaagct tttctacagg ctaatatatt 300
 attttaatat aattatTTTT gttgcttgat tatcttattg gtgatggatt aagtttttgt 360

<210> 757

<211> 207

<212> DNA

<213> Ctenocephalides felis

<400> 757

acaaatgcaa cggaagtgcg ttacggccga actgtaagtc attcgctctc gatgaactca 60
 ttttaatacg ggtcgattgt gattagtcgt cgtgtatgtg aatagagatc tgtcgttgta 120
 tgcgtaccgg cgtcaacgtt gtatgcgatc cgatatcaac aagaaaatcg gcatggataa 180
 ataaatattt taaagttaca tcgtagt 207

<210> 758

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 758

caaaaattga aaaaaatata tacaatggn tacatatattt tgaaattgtc tagaaangng 60
 taaaatatgt agaaatctaa aaatatctaa aaatccatag aagagtctac gtataaaaaat 120
 cattctcacg aatacaattt acctgccaat gttgtcgtgt atcgtatatatt tttctgatcc 180
 aatcttgaca aatgtttcaa gattgaggtc agatttttta taaaaaatca ttataaatta 240
 tttcttttcc accctattt atgacattt tgaagaactg acaaaactca attttaagc 300
 ttctatgttt tttatttttt gagaggagca aaggaaattc ttcattctcc tacaacaaaaa 360
 aacaataaaa ataatagaag tgatactctg caaaagaaga aaaactttgt tatgtgaaaa 420
 tgagattgca gtgcttgagg gcagtctgca agacctttaa agactatgca acactttcaa 480
 acagtctaca atgttctaata 500

<210> 759

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 759

acgtctattt agcaggctag agtctcgttc gttatcagaa ttaaccagac aaatcactcc 60
 accaactaag aacagccatg caccaccacc caccgaatca agaaagagct ctcaatctgt 120
 caatccttcc ggtgtctgga cctgggtgagg tttcccgtgt tgagtcaaataa taagccgcag 180
 gctccactcc ttgtagtgcc cttccgtaaa ttcctttaag tttcagcttt gcaaccatac 240
 ttcccccgga acccaaaagc tttggtttcc cggaagctgc ccgccgagtc atcggaggaa 300
 cttcggcgga tcgctagctg gcacgtgtta tggttagaac tagggcggtg tctgatcgcc 360
 ttcgaacctc taactttcgt tcttgattga tgaaaacaca tttggcaaat gctttcgctt 420
 ctgtccgtct tgcgacgatc caagaatttc acctctaacg tcgcaatacg aatgccccca 480
 gttgtcctat taatcattac 500

<210> 760
 <211> 338
 <212> DNA
 <213> Ctenocephalides felis

<400> 760
 acaatatttt ttcaaaaggg tcataaaagt gttcgtttta aataggtatt ttattatgtg 60
 tnatataact ttgataaaat ttcaaacgcg tatttataca tcagcgtttg cgtatccacc 120
 ttaatttcaa tttaattttc atcggttgat tatactgaat ataataaaga ttttgtgttt 180
 attataattt aagtataaaa ttgtagacaa taatattcta cgattcaaaa atctataaca 240
 cataattgat ttaatttttag tttaaactat aaaaaagggg aaaaactcac gatttatatt 300
 tcttctagta agtgtaagct tagatatgtt gcttttgt 338

<210> 761
 <211> 348
 <212> DNA
 <213> Ctenocephalides felis

<400> 761
 accaaaaatc ttattgcccc aaatttatnn tatctaacac tagcctatatt ttatatattt 60
 ttacaaagaa aatgcgaaag ttatatatat tatagatatt tttacgtcta gtcgttttta 120
 tataaatact caatatatca tgaaataaat caaataaaat ataattataa ttctatatat 180
 aatgaatcaa atttaattta atttttgtga catttattgc tatttctgag atcgtgtcat 240
 aaatgatctc aaggaaattt tcgttggcga tttgccatga tttaaattaa tgggtgctta 300
 atatttgcaa cgcattttcc ttataaatag tctaaattag aatcaagt 348

<210> 762
 <211> 372
 <212> DNA
 <213> Ctenocephalides felis

<400> 762
 accttctaca ttactaaaac ctctgatttt ttataaagta gatttattac aaatatttca 60
 accatcgaca accaaatatc gtgtcaaaat cgatattagc ttttgaagat attctgaaag 120
 taaacagcga ttccacgtat tttttattag tttcggaag atttttattt ggctataaaa 180
 gtgttttgat tgctcgagaa caagatgtta tctcttcaca acaatcttta cagataaaca 240
 gataaactga gtcttcgatt aatggcagta ttgaaatgag gttttatata ataattagac 300
 acgaaggcag gtccagcagt ctgagcatca gtttcgtcta tgattgcaag tatatatagg 360
 gtaaggcgag gt 372

<210> 763
 <211> 500
 <212> DNA

<213> Ctenocephalides felis

<400> 763

```
acggagtgtgta aaatattggtt gaagtatttt gaaatttatt aatttattcg aaaaggngat 60
ttcattaaat aaaaatgggtt tacgaaagtg acttttacac gacccgtcgg ccctacagtc 120
gtccggcttt gtcttcatac tccgtaacga cgccgtcccg tcattacgtg gtgacagaca 180
ctccatccag accaagggta gcggaagagc aatattctta ctctaccgc agccagcagg 240
aaagatcttc tgcagatccc tacggaagga actattcgac aacttccacc accgaaagca 300
caagacgtgc aggcggttat ccaggatctg actattctta cacgagcgaa cgctcatcca 360
gaactggaga tggaccaggt agctacagat ccagctacag ctccactact tctggacgtc 420
ttctggagg aaccacttac cgtcacttct cataccgtgt gtaaacacga aaattgaaaa 480
attggtttga taaattggtt 500
```

<210> 764

<211> 302

<212> DNA

<213> Ctenocephalides felis

<400> 764

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acgccaccac ctctgggca ttcaccttca ctgatctttt tcaattcttt gtgttgttca 60
cngttataat tcctcataac gcattcattt ccaaatagata tcggtttttc accatcaaca 120
ccagcgcata caggagtgtg gtcgtctgtg cagattttaa tgcattggtg atttctgttt 180
tttgcggggg tagcttcgat taggctagcc aatgccacaa ataaaacgac agccacaaaa 240
taaagcttca tccttattta tcttctttcc aaaaattcga tgttgtctct cagatatttc 300
ct 302
```

<210> 765

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 765

```
acggaaggta tttatattaa tgtcaactct caaatgcata agaaaagctt atggtctaata 60
attgccactg gaaaattgtc taatttaata ttaatttctt ctatgtttgt aaattcgta 120
ttacatattc ctgtagtaag attaatatga gtatgggttt aatttagtag tgaatactat 180
agtaacccta taaacataga catthaagttg atcaacgcgt ttatatcatt agatctttca 240
atgaaattag cattaaaaat tttcaaataa aaagcgtctt atattatcgc agtaaagttt 300
ccttaactct ccaagaatga ataaactgac gcattagggtg atctatacat caatattaca 360
gcgcgttcat tgatatttcg atgttatttg ctcacattca acatttttaa agttttttca 420
ttctcaagag tttccggcga tgttcccggt gctagtcgaa acacatgcag gtgggctttc 480
ctttctactc ccgtgatatt 500
```

<210> 766

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 766

```
accagagatg aaatttgcgt gcatcaccgc gaagttttgg aagacattgc caaatnngaa 60
tgactacaaa gcggtttcag gaattgaaaa cgaaaacata gaacaaataa taaatcaagc 120
tgacctgcaa aagtattatc cagaaattat aaatttatac aatacaatgc acgtctttgc 180
gttacctcta gcacatttgc agtcttgttt cacgtttaat attgaaaata ttcttaaaaa 240
cgaaaacaat atcagttatg ccaataaaat taatggattt atcgaagaat tacaaaactt 300
tgtagtaata gctcaaagcg agtctaaatt ggggccaaat gaggaactca caactttaaa 360
agatgtaagc gatcttacca cacttgaaga tcttagtcat aaaataatta gtgaattaga 420
aaaaagcagt aacagcagtg atgaagtaag ttcatttgta aaatcattga agacccta 480
atgcttgatg attctataaa 500
```

<210> 767

<211> 479

<212> DNA

<213> *Ctenocephalides felis*

<400> 767

```
acattttccg caaacatggt tgttgcaact ttgacacgtg ttattagttt tattattatt 60
acaaagtctt atttggcaaa attttctttt attactattg gtatttgcaa gatgtctgtg 120
ggtcatcatt ttctttgat tttttttgtg ttgatgtcgt gtagtccgcg gaaagctgtt 180
ctgccaatc aaacaaaaac tgttctctaa ggatttggtt tctttggatt ttatttcttg 240
tcgcttctt gtaaagaatc caggcattta tcgcagccaa atccaaaata ttgaaaaata 300
tttgaggagg tcatctattg gattggaact ggatttcacg gtatattttt ttaccttttg 360
atctgccatg tcttctttgc tgaccataaa taagtcattt tcaatttttt tgctcatagg 420
ccccacgagc atataaaatt ccaataaatg cacgtatttc ggtaacgatt tgctaactg 479
```

<210> 768

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 768

```
actcaagatt tgttacaata ctttataaga cttaacntaa taatacgata gataacctat 60
tacctatcat actatattat attatttgtt atcatcgata gatattctatt atctatcata 120
ccgtgagata catacaccgt cattaacttg taatatacct acagaccttt tacttcttat 180
aaatactact gtctaattta tatattcacc tatattatat aggtttacct tacgccctat 240
gtattatctc tacctatcta ttgtctatac caggaattga acccgggacc tccgcgtgga 300
agtcgcgcac cttaaccact accctatcgg ctaccccat taataatata atatgggacg 360
cactgttggt tccgcgggac attttctaata taattagata attaatacta aggtggcgcg 420
acaacacgcg aaaaaagacg gttgattgta gcgttacggt ggccgagtgg taaggctcgtc 480
gcgtgccacg cggcggaccc 500
```

<210> 769

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 769

```

acaattatgt tcttatttaa gctttgcaat aattctntag actgtcctct tattctcaat 60
caactatcct ttaatgttcc aaggctatct tcgcgttcac aattatTTTT caattatccc 120
accctaaat ctaattctct cttaaattcg ccaattttac taatgtcctc taactttaac 180
ttaattaata atgaaataga cattcacaac acatcaccta atcaaataat ctccatctgc 240
acaagttaat ctttttattt tctttcaa atcttattat tttctgttta taattattat 300
tgttacattc tgcattatat gaaattttat cttagcattt tatgttacta actatatatt 360
gtaattttgt gtatatttta attgttattc attatgtcaa ataattgtat ttttgagtcc 420
tcttgagaaa atctgtgggc tatatattta aataaataaa taaataaata aataaatata 480
tgtacaaata tacttataag 500

```

<210> 770

<211> 106

<212> DNA

<213> Ctenocephalides felis

<400> 770

```

acaaattatt gttgtgtggt agtttactan tttagagtaa agtaaacgta acacacaatt 60
gcatatgcat atattattat tcttatatac atataaacia tagtgt 106

```

<210> 771

<211> 453

<212> DNA

<213> Ctenocephalides felis

<400> 771

```

acataataaa tcgtgataaa attaattcaa agtagcacc aaaaaccacc gaactttgca 60
cgaaattacg ttttgttctc aaaaaagaaa aaggaaataa atcaagatgg tccaaggcga 120
gaaatacctg gcaaccaagt ccttgtctat tgacaactct cacaagaaga gtggattcga 180
cgctgtgcaa aaacgcgagg aggagaaaag gcagcaggcc aggaaggagc aggagcagaa 240
agctaaatat ggagcctggg gtcctgtttt caaagacagg gaaacttttg ccagcatgca 300
cttctgttga aaacataaaa ttttatatgg aataataaat ttgttttata aaatactagc 360
atactaacia aaggactaac atgattctac cttggaccta aatacaatac tcaaataaat 420
tggaacaaaa cagagatggc aacgctttta tgt 453

```

<210> 772

<211> 182

<212> DNA

<213> Ctenocephalides felis

<400> 772

```

acaaagccat cactccacca attacgccag tttcaggcca catcaacccc gctttttttc 60
ggccttatga cttgttagtt tggtatatct aatatataaa tttatgttat tcaacaataa 120
gtaaacccca caacgtgaac aacactgctg ttctttgtcc tgaggtagga ttcgaaatcg 180
gt 182

```

<210> 773

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 773

```

acaaaggtcc aattgaactt caagtaatta cntatattta accaaatgaa ctacatcata 60
catgtaacat gtgtaaatat acaactacag ttttttttct aaaatttgtc atatggccca 120
ttttacccca taaacataga taaaatggga cagtcagggg acaacagttc ttctaattgc 180
tgattttaca aaataatagc taaatattta atcaatgaaa aatttacaaa gattatattg 240
tatatgactt agatctggta tttatcaga agtatattat agcagagttg gtataattat 300
taattttttt ccttgtaaaa ttgctttttt ttaactgagt ttacattttt atttacattt 360
tttattatat acttttttgc cagggtaaag gttcagttgg ttctttttgc cccatccaca 420
tgtaagccat tatagaggtt atatagaaac atctgttgaa tctaatttga aattaacaat 480
agattttata aaacaattca 500

```

<210> 774

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 774

```

aacatttctg tgataaataa actctagttg attcgagaat atttgttatg atctttgttt 60
ctaattgcaat tgtaataaat aattatgcat tacaaatggt aaaatgaaat tattatgttt 120
atttaataag atacataaaa gtaatttatt ttagaaattt ataattctatt ttactaaata 180
tgaaatatga atttctagtc ttaagatttt actaaattac tgatatttga attgaaatat 240
tgctgaaaag taattataat ggacattttc acgtagcaaa ggtatttaat cagtaatttt 300
tgaacatttt cattttgcgt atatatttca tctataattt ttacaaaaaa atatttacac 360
atgccataaa atgaatgctc caataatcat ttttatattt acctatctaa ttcgnngtaa 420
tttttatggg ccccttcattt gtattatttt ttaatatgca attttaaatt ataagatctt 480
gtgtttataa ttaatttatt 500

```

<210> 775

<211> 473

<212> DNA

<213> Ctenocephalides felis

<400> 775

```

actacgatca atggtgtgat agcttcgaat taaaatgttg atactatcga gtatccaaat 60
taaatttgga aattaaaaaa tgtgtgtgtg taattgacag aatctttact tcttctaaaa 120

```

```

gcaaataaat aagttatatg ttatgttact tataaaataa ttaatatatt taaatacaac 180
aataatgtct gcattattat cttaacgatg ggaaaatgta gtaaaagtca acagatctag 240
ttgaccgat cactcctgat tattaacat aggggttaata aaagtattat aaattcatca 300
aaatttaata ttaaaaatga tcaaacaata ctgatcttat tatgatcata cctaattata 360
catgtgataa tataaaattt caaatcaata cactagcgaa tactattatt agtttatcat 420
agactaatgc attgattaaa attcagggcc atccttaaat taattaaaaa ctg 473

```

<210> 776

<211> 499

<212> DNA

<213> Ctenocephalides felis

<400> 776

```

acctttncac agcctctctt angtctgatg ttagacgttc ngctngcaac ttttgttggg 60
ngntcctcgc gcnncnaacg ngagntagcc ttggaagatc tctacttgn gctgatatta 120
gctgnattgc actgaanngt ggcgtatgac tgnnaanann acnnnnnnnc ccttnccagt 180
ttnttatang catntanata attntaagnc atttttataa nctattatan anattatcta 240
tnggggagnc agncataatt gaaaccagtt ttttctatca atcatagatg atgtaatggg 300
ctaactntca atagaactat tgaagttac nccatngcat antgaaaatt anactattca 360
annatnaaaa taatacaata attatgnngn agcagntacn ttttaactat tgatactaatt 420
gctactttta tatcttaanc aactaagtna ctcatnttgc tagaaaatat ctaatnaaat 480
tatataaact nacatcttn 499

```

<210> 777

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 777

```

acgttcacct gccgcgcaat cacatcggtt ggtcaagtgg aaacctcagc aaaacttggt 60
gttaaaagta agaaataaga catggactcg ctctaataat tgttctaaca tttaaattac 120
tattatcact agtcttgcta tatttatttg ctttgttttc aatttagtat atcaatcaaa 180
gttagattaa tagtagtttt tcgagctatt taaaaatgat tttaaagcag tataaaaaata 240
taactctaatt aatattattg cgattgatat atttatataa attatttatt ctatagttca 300
atttaatagc tattaaaagt atattgtgaa tataaataaa attgcttgcc atagatatat 360
taaaatatag cttaagcaac tgtctttata tcatattagt aaggctctaa tcgggtcatga 420
tattttgtgg tgttgattat tattctgtgc tgtaatcatt gtccaaatga tatctgattg 480
tttaacatga taaaaaatt 500

```

<210> 778

<211> 188

<212> DNA

<213> Ctenocephalides felis

<400> 778

acatgcgtaa agtgcaatth aaataagaat taaagaccta ttaagaatgt tttatagcac 60
 cttttatgta atttgcataa tcatggatac tagagctttt atgtataaaa ccttattcgg 120
 ccattttattt atatccagaa aagtaaaaaa ataagctggc tctaaaatga ctattattta 180
 taaaaagt 188

<210> 779

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 779

accagataga aaaagttaga agtatttgat gataagttga tgttctcatt atttatttta 60
 taatgacata attccagtta atcattccac cgttattttg atctgactca ttcctaattt 120
 actaaaatac ctgaaacaaa attccgtcca ttaatagaac agataaaaaa tcaatccatt 180
 actaacaggc ggctttcgat tttcgttaca aaatgtttta atgttacttt caaaagatta 240
 ttatttggtg ctttgttcta aatatgggtt ccgttttata ggattaaaaat tggaaattaat 300
 ttctaataaa tgtctataat ttatgatcat tttcaaaatt gatctttctc tcgaatcgaa 360
 tggacaatgt gtgtcaagaa caacaatagt caagatctat tgattggatt cgattggatc 420
 tttatcgatt attatcagta tcacaccttt ggataaagtt cagaaatggt gtaattattg 480
 tattaatatt tatatgttac 500

<210> 780

<211> 434

<212> DNA

<213> Ctenocephalides felis

<400> 780

acgcacgtgt cagaattggt tgaaaaaatc agtttacaga aattttactt aatcacgctc 60
 attgaacagt atgcacaatt ttctcgtcag aatcgaggta aaattttgct gtgaaaagt 120
 gaaatgcaac tattttttat actggcttaa tcggtaatat attttaaaca tattgtttga 180
 gaatatgtgg ttgcaaccta aatgtaatat tcaaagattt atatgcaaaa attctgccaa 240
 ttctccatga ggagtatatt cgtcaatcac agttttaagt aaaggatgac atcgttctcg 300
 tcgagctatt aaagttgatg atcatattgt agaaatttta tacgtattgc acacaataat 360
 tatcttgga ttgttattag acttaaacct tttttgaagg ccataccttag tgatggtaaa 420
 aaatagagtc atga 434

<210> 781

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 781

acgggaagtt ccagcaatth gccttaagtg atgctataca ccactagttt ttaatattga 60
 tgaatatacg tattttaattg aaatgttgaa acttgatat ccaatagtaa ataattcgta 120
 tttgcatttc tatttgaatt acagggcttg aattgagaaa tattaaatgt ttttgaaat 180


```

aatgctttga aatattttga ttcgaaatat tanatccgaa ttaaaatatt attagaatta 240
ttatttttaa tcgttgaata tgctttttaa ttattttatc attgaactta aaagcttctt 300
ttcacaaaga tttattaaag agcaaatatg ttttataagt gagtctactt cctgaaaaat 360
gtcagaatac ttgcatttta atatatattt cagctaaatg acaagacatt ggcaaaactt 420
gtattcactt attttaaatt ctgaagaaga cacaacattt aaaaatattg tcgatttctt 480
gnataaatta tcgcccttaa 500

```

<210> 782

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 782

```

caaactttta tagatgcaag aagcaaatta ggatcaaaac ccaattttatc tatttttttag 60
tgcagaagat ttttttctga tgcattaatc ttcatacagt tttatgttat ataaaattat 120
aagtaaataat tttacctcaa catcacttta cagaatttca gtaaaaattg agcaattaat 180
acaattcaat attgnaaata ctcttactgg ttggagagcg gatagtttca aaaattttct 240
aaagaaaaat tgagtgtcaa cccgatgttc tatttaaaac ggattcgtta tatgccattt 300
cattaagatc gaaacccaat ttatctattt ttaatgcaaa gatttttttc tataattaat 360
gtattgacct tcatacagtt ttatgttata taaaatttta agtagaacat tctacctcaa 420
cattacttaa caaaatttct ataaaaattg agcagttaat acaattcaat attgaaatat 480
tcttactggt ggagagagga 500

```

<210> 783

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 783

```

acttcttttg taagaattaa tttgtttata tttatatgta tgtatatgct aaaattacaa 60
ctaggatatt ataaatcaga agagcttggt ttaaaacaat tcatatttcg ccgactcccc 120
tattgaaata taaattaaaa ttttgctacg actagaacgc gtggtttctt gcaaagtga 180
atcattttat aatgataaaa ttctgaccga aaattatatg tcgaaatgac agaccagaat 240
tagttgagtg taaacggttt attcgtcttt caatgtccgg cgtaagtcac aatacaatat 300
acgttcactg aagcgatacg ttaaaagggt ttatagaata agaatgcatt tcaataatga 360
ataatacagc taaagattga attatatccc actttgcaac gcatatttga gtttaagagca 420
gagaccgacg gcagacggca gagagcgatg tccatgccgt cgtcgtgcct gaaatattat 480
tattccactt aacatctgaa 500

```

<210> 784

<211> 422

<212> DNA

<213> *Ctenocephalides felis*

<400> 784

```

actttcttcc caaaactcga ctttttattt gaaaacataa ttactcggtt gtagtaaact 60
ttntntaaaat atgtaacaaa ttacttagca tctttctaaa atttattcaa ataagtattt 120
aaattaaatc ttcctctata aaatcgtttt atttctacta atttccaata aatgacttct 180
cgctttgctg ttttttatgc tgnnggacaa acaacaaatg acatatgacc aagcgttgat 240
atatgcttga gcatgatatg tcatgaatgt ctttattgta attatgccta atgccttaat 300
aattttcttg aaaaattttt ataccactat tccgtttcca aattcatcta ccacgagtaa 360
ggtatacatt tgaaagccat aaacaatagt tccatttgta tcatcaatgc aatccctgtc 420
gg                                                    422

```

<210> 785

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 785

```

actataccgg tgcntaccgt ggcaagatga acgtcccaaa acgtcgctga tcaaattaat 60
agtcctcggt gctaatttat ttattctgga aaatcggtgg atttgtttgt gttcacaaaa 120
tttccgttta ccaaattttc ctctataatg ttcggagtgt tggccgccac ctcgatttgg 180
ttactattgg catgggcagc tatgctaata ttttccttc cgttgatgtt cgttgtgtta 240
gcagttttgc cgggactgcc attactgatt attcgaaggg tgtgctacgt gcccttcgat 300
tcgatttaaa tttgatttct tcaattaaaa aatcaatttt aaataaggca gtgttctttg 360
aaatagttat ttaatcggtg catttcatag tagttgtgat atttatattt tttaaacata 420
tatcttctaa tcattgataa gtatgatatt tatacatagt cttacatatt aaggtataat 480
atataataga ttagtcgtat                                                    500

```

<210> 786

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 786

```

acaattgaaa tatatcacag tcaacaataa aactgatgca attttagcac aattgaagaa 60
tgaaatccaa ataccataaa caacgcttaa caaccaccta gctaagatg agctaggtgg 120
ttgaatattg gtaagtaata taaataatga ctttatcata caataatatt actttcactc 180
atcaatttga cacaatttcc caaataatta taccaataac tgagaaaatt tttgaacaaa 240
tttcgacagt tggttatttg atatatgtta tgtgctgata tgattataag tgtatgatat 300
atattgggat gcttaatgga acatttcact caaagatgca tctaagcag ctcaacaatc 360
aatcatgaaa gatcgaccgc aattttccat cttgataact agatgtaaca aaatcgcat 420
tttgtttaga tattttattt tatgtaataa cactgcaatg cgtgattgga tatcaaaatc 480
ccataagcgt tttttataat                                                    500

```

<210> 787

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 787

```

actgaatatt gttgtggttaa ttatttctgg tacgaatgat tcctttgtgg atacggtagt 60
aacttcttgt agcaccgat ctgttatgaa gtcggggata tctttgtctg cattcatatc 120
tggtggtggt gcagtatggc ctggatttgt ttctcttggg cctgttgat gaatttcttt 180
atcatgctcc gttggcaaaa tcggaatata gctactttta tttttaaaaa tctcttcac 240
gtgaccagca atattattat tgttgttacc attaatattt atatcgattc cttctgtgat 300
atctgaatat tcatcaataa aatcatcgga gcttaacgtg tctggagttg gagtcacctt 360
cggtttaaat gtggtcagac gtggcaaagg aggaaaatcg ctttcttcat tcattttttc 420
tgtcacattc atgattttca caatcatatt accgtaagtt gtttcttcga ttctgaact 480
gcttgataat gcctcgccg 500

```

<210> 788

<211> 436

<212> DNA

<213> *Ctenocephalides felis*

<400> 788

```

ncatttcaac tgagttcatt aattgagttc attaatncgt gaatgccaag gcatttacct 60
atctcttatt atgtaaaaata acgatggctg catttctttg aattacaatc gttattaaaa 120
ctaggcaaac tgaaattttt gcccttggat tgcagtgtt gagtgaatcg cttttggcaa 180
atgggataat tataatcata tcagagtcca tattatgtgg tccaatattt agttaagatt 240
tgtattatac acacagcaaa aaatataaaa tataataaat atactctgga aagattagt 300
aaaactatta taaactaaga cttctcgata tactttcagt gaatccaatt acttcgaaaa 360
aacctttgga gttagaaact aaattcctag tagtttaagg ataataattt gatttgaatt 420
gtaggtgct gtatgt 436

```

<210> 789

<211> 277

<212> DNA

<213> *Ctenocephalides felis*

<400> 789

```

nctccctcca acgcagggtgc atcgtcgttg gcgtcgtcgc tgatctccgt gggggtataa 60
taaaancgaca tcttactctg agattcattc aaatttggaa cttctaattc agccaactta 120
tctattttcg ttttaatata catatctatg cctgcaatat ctttgggatc gaacacaaca 180
gagtcgttac gaccgcaaga accgctttta caattctcga aatagaaact gggcaaattt 240
tctaaacct tattaagagt ctgttgctgg tatttgt 277

```

<210> 790

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 790

```

caattttgtt gatggcatga taaatataac ttcttataat taatattgca gattaaactn 60
gtgggtatact ctttttgcca tcagcathtt ttattgattg aatacaacag attgttaaat 120
aatatttcca atcaataatt gtgatgggtt atttctacta gatttgaaaa tcatttgatt 180
atgattttaa catataaaac cgttaaactt cgttttaatt atttgataat agtgctgaat 240
tacacattgt agccattata ttaaacaaat attcaaatac ttattagtca aaattagttg 300
ttactataat ttaattttaa tattgtgcaa ttttatgtag tataatttag aaatttatta 360
ttaaacacgt gttttattgt gaataaaata taagagattt atgggaactt tttcaataac 420
tgaaattgag ttgctttgca tttttttaat atgatgaatc gtttttgaaa tccatattta 480
tattttatta attgacctgc                                     500

```

<210> 791

<211> 326

<212> DNA

<213> Ctenocephalides felis

<400> 791

```

wcndkccadg nhtastcrys ktwbkhtnta hdvdacsagd mhacrncvwr tbwyyrrwyk 60
vnwmtmsnwr manrgarcyr chsnamnb tydnachcks mcratndats trandsncnc 120
ttacaccctc catgctgatg ttgaagaatc ctttcgtgtg tatttggaac aggttgacgc 180
ctncatcaaa tttataattt ccttcgaaaa tcaaattgtc gaacatcagg tcaatttcca 240
tttctaaact gtcacggtc acagttgctc tgacttcttt gatttcgcaa ttgctgctcc 300
cgaagacttt gttgtctttt cctgt                                     326

```

<210> 792

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 792

```

accgttgttc ctagggggat aaaataagca ggttataatt tttgtaaata acaacaatat 60
ttataatcat actggaattt ttacagaatt tgtggagcaa gcctagataa aaattttgcc 120
ttattttctc agatgttcat atcttattat ttatgttcaa tattaaataa aaacattacg 180
aattatgatt ataaacatta ggaaataaat tacaatatga ctaaattaat tttcaatctc 240
ctatcatttc agttaatttt tactggtgct attatagact tgcttcatta agtttcagaa 300
ttaccttcaa tagttgtaat tataaaatat atttataaag tctataaatt agtaaaaaatt 360
gtatccgagt aagcaatttt aaacagatta ttactcact taatacattc actaattata 420
tggaatacta ttagttagat tagaagtagt ttatgaacaa atgatttggt catataggag 480
tggttgtga caacaaaatg                                     500

```

<210> 793

<211> 219

<212> DNA

<213> Ctenocephalides felis

<400> 793

aatatgggca acaataaaat gaacattaac aacgtgaagg cgtaaatgtc gcaatactgg 60
 aagttatacg ttgaaatta ccatgtggct catatttagt atgtttaata catttagaac 120
 ccacaaccac gctaactgat aattaatatt tctaaacggc aatacgtgta tcattccgtg 180
 tctgctatct tcgccataat caaataaaat tgtttatgt 219

<210> 794

<211> 252

<212> DNA

<213> Ctenocephalides felis

<400> 794

acataagaat aagttattat tatgagggtta acgacgcgcg aactaaaatt atcacgctga 60
 aatttattgc ttgaatacat attaaagtaa cataaattca aacttacaca ttatttcatt 120
 tatattaaat gaataaatgt ataaagatta ttaccattca cgttcttcac atattgcgtg 180
 cttacattat tactttgatt gtgcaaatat tataacattt acattatgtt ctaatgagtg 240
 attttttcat gt 252

<210> 795

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 795

acttagctgc aagctttttt atattctgac cttgttgcac gagttctcta aagtattcgg 60
 gacactcatc acgtttttaa aatcttaaaa atccgggcat agcagcaaaa tatgttgact 120
 gcagctgtgc ttgagaccaa ggtccagagg cttttgcttt atcattttct agaccagctc 180
 ctataattaa tgcggctggt tttgttcgca tagtgttgtg tgctactggc cagtaatttt 240
 tcttagaatc ccatttcttg atattaaatt gtcctttata tactgtatct aaaagttttc 300
 cgagctcgaa agcttctttt ttccacctt ctgttaattt actagaactc tctgataagt 360
 tagtcaactt gggctctcca ggataattgc aagcttcacg gctggacctc ttncatacaa 420
 aaacaaactg aagttatcat tgctaaaatg tattgactga ctagcaaatc aaaagaatca 480
 ataactctca tgtactataa 500

<210> 796

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 796

cgggggccna cncattatccg atanacccat agaccttata cntcataga ccttatncaa 60
 tacatggacn gggagntnan cgcataaaaa gcgtcaaaag atgtcctacg gnatgagggc 120
 gtacgaggggt aattttgcgg ccgagatatg tcaaatacga acacgagctt taccganatt 180
 agtcgaatgc actcgatcgc ttaaatttta cagttacttg gggtcacgtg atgtttgatc 240
 gttcggnntt ttaaaactaa agatgataaa aatatacctg ttgtaaaatn ngttaaangt 300
 aaaatgtctt ctaaaatgtg taaggnaagg tgcttgattg cagtaaaacc tgttttgtgc 360

tgttctgtat gcttcgcaag nattccggga aatncgacat tgatcgttta aaanatcgag 420
 gattctttta tacccttcga ngaatgttta tttatgttat atatagantg ctantcaaa 480
 tctttnttta tgtacaaagt 500

<210> 797

<211> 324

<212> DNA

<213> *Ctenocephalides felis*

<400> 797

gctgaaggca tgaacgagca attgagcaat ttaacttaag aagttttgac ccaagcccaa 60
 gcaggggccc ccgacgtgcg ttccagtgtc gacaaattcg ccaaagaaca cgaagccacc 120
 cacaccggcc actaattata aacagaaaac cttctgtgat catcatttat catatcaa 180
 atatatataa attcattaat taattaaaat ttgttttata gttgtttaaa taatcttcgg 240
 atatttgtaa aaattatttg gatgttcatt tgatttatat tataaataa atacttcata 300
 aaaaannnaa aaatanaaaa aann 324

<210> 798

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 798

gcctggcctt tgtgggtcacg ggcaggtaaa acccttgaca acttcgattg catttcacct 60
 tacattttca aatatgtatt tgggtgtgtca ctagtaattt gcataatgtg tttagaatgt 120
 tccggtgaaa ctttgcgtgtc atttataaac gttaagcgga attagtgcac tacgttcaag 180
 gtattatacg agcataattt tacataattt aattgattgt cgcaagctac acatttcatt 240
 aattattctg attctattaa ctaccgcaga ttatcctgaa actaaaaaaaa atatagattt 300
 ttaactatca aatatctctt tactactgac tggtcagtat tcttttaaca gtgtttgaat 360
 tgataaatgc ttttcaactat tttatttgcg aaaattatgg aatattcgca aacactttat 420
 caaataaaat gataaatttt cgtattctca aaagtaaagtg cttgtagnaa tctaaaataa 480
 tctaatacat gcccaaaagt 500

<210> 799

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 799

acaataaaaa tacgaagata taaataaaaa aatgagaatt aactttttta acaatatggn 60
 aagaaattta ttataagact aaaatatttt gttgtatata aaggtaagac acaactaaaa 120
 taattgaaaa atatgcaata actcactata caaataattt gaagaaaaaa caaaaaacac 180
 ggaaaatata atgcaccaat tactatacaa ttgtcaaagc acgaattttg aaaactatta 240
 aattaaaaca aatattaaat taaaataaaa taaatgaaaa ggtttttaaa aataaactct 300
 tttcatcgag acgtgtttata tgtttgga aaattact agtgaattgt gttgtgtgtt 360

tctatgtaaa gataaggaaa ctggaagagc tgtttcgta ttggtgaaag actgagatag 420
 gaaagttttt gtggcgcttt gccggcgaaa aaatacgaag taaggantgg aaaatatagc 480
 tttggattaa gctgtaatag 500

<210> 800

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 800

acggaatata cgtttccgtg acccttgagt gccaaatcaa cagatgggtc aggactgtgg 60
 gnaaccttan atcttaattc aacacttcct ggtgattttt tctttgagtc gttaagcgtg 120
 aaaactgact cagtattgaa accaacaaca gtcttctcgt ccaatccgct agtttgaagg 180
 tcaagtgggtg caatcagggtt atatgtgata ccttgggtatt cagcgaattt gctggccaaa 240
 tagaatttga tatcttgga tggtaatttg gcggttttaa catttggtcc gtgaattcca 300
 ataattgttt tggtagcacc agcgcggaat ggatattcaa cagcatcatc atatgcagca 360
 taagcagaag tcaatccgaa ttcatacttc acgtcattca cangcttagc aatagttcga 420
 taagtcatca agttttcatg tccagttttc aatgggtgtag ctgttggtat cattacggnt 480
 tacggtccag nttaccacng 500

<210> 801

<211> 166

<212> DNA

<213> Ctenocephalides felis

<400> 801

acacttttaa cgactaatgg agcggagtag tgacttatca cagggggcgt ataagccaaa 60
 ggcgctacgt atctggggcg agcaaaagct acagctacga gagcaaataa aacgaccagt 120
 ttgaacattt tgatttagtt ttgaataatt ctcaggaggt ctgaat 166

<210> 802

<211> 266

<212> DNA

<213> Ctenocephalides felis

<400> 802

acttaataaa atatttaaaa tttgaactct acttctcttc ttaaaacttt tcaaattaaa 60
 ancatttatt ttagtaaaact atgctcatta ctattaaata cacatatcta ataaaatctg 120
 cacatgaaaa gaagagcggt taaccgctgg gttgctccct tgagaaatat ctaggctata 180
 tattcaaaga aaaaaatta tagaacacgt agttctgatc gctattgata taaatatata 240
 aaataattgt aaaatattaa caatgt 266

<210> 803

<211> 499

<212> DNA

<213> *Ctenocephalides felis*

<400> 803

```

catataatac taattataaa ttaaagtgtg tgggggttgcg ttgcttctgg gaaaaacatc 60
gcaaggaccc atacaccgaa tgaaaaaaaa taatttatta acgaaacgcg aattactaga 120
acctgccgtg gggggtaggc gacaggaaca catttaaagc cggaatcgt tttaaacgat 180
attaaaatta cgaacaagtc ctcgcacgaa caaaaaaaaa attaaaatgt ggacgcaa 240
aactcaaaat tataatttaa caacattata aaaaataatt aaaaattgtc aatgtgattg 300
aataaaaaaa attcatgcac aataaatccc taaagcaatc cgccactgcg caaaacactg 360
tatgaaatct gaaacaaaac aaatgtagtc aatcgtaa atttgaaaca taagatttat 420
attaaaattt aatattattt aattatattt aaatttaata atctgaagat tgattaaatt 480
atttatatta actcaaagg                                     499

```

<210> 804

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 804

```

gaacaagagg tttaggnatg agatctgcaa aatttgggca agatctaaaa tcgaaggaaa 60
ttattttata tgaatatttt gaatgtaaaa aaatgtgttg aaaaatttat attgtaatgg 120
atggtttcat aaaggcgtg ctagaaacaa aattattata gttggtttta acatatattg 180
caagatattt caaagatatt tgtttagatt attttctac atttattttt catgctctta 240
tttatagaat cagcattacg ataaaaatgta taagttaaaa tattgagtct gctgatcttg 300
agtcctaact tcaatatcag aattgttggg ggcattgttg tagaagcact tctgtgaaag 360
atcttttgcc catatgaatc tgtggtcaat caatttgcg gtgggttgct tataattttt 420
cctatttggc caattattct ttggctacga ttttgagaca natcttttcg gtatcaaata 480
actcttgatt cgaataatca                                     500

```

<210> 805

<211> 216

<212> DNA

<213> *Ctenocephalides felis*

<400> 805

```

actaaagatt ctttatattt ttaatatgtt ctcattgcac ccgtttaatc tagttcaagt 60
tttataatac acaaacatct tataaattta agtataaaat ctaaaaatta tcacacaata 120
aacgctagtc tttcagagta aataatataa cccttaagac tttgattctt aaattaatgg 180
taatatcaac cacaaaatat tggaaaagaa aatcgt                                     216

```

<210> 806

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 806

```

actgtaaatt tttacacaaa atgcaaatat ttaatatctc ctataattta tggattaatt 60
ctgccttatg tcggaagtca accggatcat aaaaagtgat ctaattgctg aaaaaaatta 120
gtcacacttc tgccaacgta tatcttggag catcggttta ttcacagata tggtgcaatc 180
atttcaatta tacgttggta gatcttctag tcttagtctt gtttttataa tcatagagga 240
gactggagaa agaataactg gaaaacctta ctgggtgatg gatatccaca atatcgtag 300
cagatagtat ctgggataga tttttggagt ttttagtcat ctagtaaaat attttttcac 360
taatattaac aacatccaga ataagaattg atcaaaaatt tttacttcat tttataataa 420
gtttgttagt aattcgtgat aggatatatt tttattactt tgattatatt ttaataactt 480
tccttccatt ttaacaacgg                                     500

```

<210> 807

<211> 355

<212> DNA

<213> Ctenocephalides felis

<400> 807

```

acaagaatgc aattattggt cttcaaagga aaatgattga ttttctacac caacagataa 60
aacagtctct aaaagaattt gtaaaacttg aatatttttt tcggtgatac ttgcaggaaac 120
cgtaaaatac aatcaccacc accaccttta gcttcagcat tcttggtttt tacctttttc 180
tgtttttaac acctgtgaac tgccttttcc tcgacttcaa ctggctcaac gatattttta 240
gatacaaaaa aatatcgtag ctggataaat ttgttggtgc tgcttttaat attttagact 300
ttcattttgg tattaacatt ttttgataga acttttactt ttactaagtc ggggt      355

```

<210> 808

<211> 424

<212> DNA

<213> Ctenocephalides felis

<400> 808

```

acaagcgatg gaccaccngc tcncccgct nngttggtcn gtagtaaaag aaatctaaac 60
ctnnngttct tatttattaa gnncattgng taattcaact tacacctagg taatttatta 120
ataattatcc aattattaat aaaaaaaatt aatattgact acttaattac atttatattt 180
gctaaaatag tatatttaca tcaatttttt ttttcaaagg caatataaca gaaaaggctc 240
ctgataccat gatcaggcag attctttcag cttgtggtcc agttgtttct tggaaacggg 300
tttctgcatt tggattttgt gaatttaggt gtgtattgta atgatttatt aataagacaa 360
aaatgtctag gttattaaat tacgaaattc attccagttg tccagaagct ggtttaagag 420
cagt                                     424

```

<210> 809

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 809

```

acatcacaga tttttttttt tcaatatata ttccagtga gagaaattta tccaacangg 60
gggtaatttt gctcatacca gtgaaatatg tttattagcc caacttggct tcaaataata 120
taattttttt aaaccttatt cacatatatta ttatcactgt acgacttttt caatgcgcgc 180
tcgaacgaaa ttatgaacga gttttaaaaa tatttttagc agctcttaca gtgttggtat 240
ttgtaaatga tgatatttat aaatttcaac agatacttga agtacacagt caataaaatt 300
tccaattttt cacaacnggt taaatttgca ccaccgnaa ctggcncctt tgcaaaagnn 360
tccntntngg aaantaattg gccgganncn aanttanctt atnttttttt cnggtccana 420
ccgccctttt aaaaaccctt ttttttnggg aaaaaatttt ccnggggtttt ttttttnccn 480
aaaaanncn ngggnaaac 500

```

<210> 810

<211> 298

<212> DNA

<213> *Ctenocephalides felis*

<400> 810

```

ggggacatat ctaaataaca nccaaaacaa ctctcctttt tgtttgtgct gggttgcaag 60
caagcgggga ctttagtcaa acgtctntca aatgcttnta aatctttaca cgcagcttgt 120
tcaagtgaca tgtttactat tttttgtgtt acatgatcac ataagatnat natgccacag 180
ctaaaatcnt tttgaaaaaa taaacctggt atttattaca cactacatca atttacctt 240
caaactaacg tngcattttt attgaatata taacatgata agctaaactg aaaaaatg 298

```

<210> 811

<211> 243

<212> DNA

<213> *Ctenocephalides felis*

<400> 811

```

actgtatctt tttgnctatt cacaaaaagt atttgtcaga agtgggattc gaaccnnggc 60
cctcatagag gaccagaatg ctcagccagt tgtaaccgg caaggaaacc ttgagtatgg 120
cgcttagac cgctcggcca tcctgacata cagcaaagct ttgcaattgt ctcatcagaa 180
acatatttgc tngtgtgaat ttacgctaata acaatgaact ttgtttgaga tttttttaca 240
agt 243

```

<210> 812

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 812

```

acttcaagta taaccaacg attcacttnn ntctgtgcac ttggcataa atatccngna 60
aaatatgtaa aacaggaacc agggcaccgt gataatgtaa tcaaaccgag gaaaatgatt 120
tttgatcgta tccatacctt tatagcgaag tcgggaatcc ttgtgattat attttcctaa 180
aaaaggaaag aagttctcgc atactgaaaa gaaaagtttt gtctggtggt ccgatttcga 240

```

```

actttcaaac ttattcattc ggttaccgcg accgcgaatg aaatattatg atttttcttg 300
ctcttgtccg gaataagata gattgacttc gaatattacg gaatataagc tgggctgcga 360
gtaaattggt tgatttgggg ctttttatta tcgataaaat atgtgctttc tttgaagatt 420
gtttgaaact tctgtgttat cttcaagttc acaatgataa cattaagctt aataataaat 480
atgttagagc aaacaaaaca                                     500

```

<210> 813

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 813

```

acttttcaaa ctatactgga gagttttttt cttntatttt ttattgtaat tactatcaat 60
acgatcacct cgttacggtt tgacgttgag ttctgggaca ccctgggtaa attatgttaa 120
ttatatgtat ttgagcataa atacatgtaa agcaaatgta ttactgatag acttttgact 180
ttaactttac ttgaattagt aataaaacca catgatagaa aattattgag tttttttata 240
gaaaagttta ctgttgattt tttttattaa atcattgcaa tgtgctaatt cacattcttc 300
attactcaat tttatgccca actcattata atattttggt tttcttaagt tttcatacct 360
cgtatcagaa ctttctcaaa gtcacccct agctttactt taacttcctt attatttcac 420
tgataataag aacttttgat ttttttaaac atatatctat caagttaaag tttaaaatat 480
tcatgaaatg aactttgatg                                     500

```

<210> 814

<211> 285

<212> DNA

<213> Ctenocephalides felis

<400> 814

```

tctgantatt ttatnaatat ttaagacatg tgcnaanntg angtnnnntn natanaanaa 60
tngtgcnnta tcaaaacgtn actttttttt tctctccaaa ggcaattttt ttaaaaaaaaa 120
ctccgattat ccgaatattt gattatccga atgggtcccg gtccccatta attcggataa 180
ttggagttct actgtataaa actttgtata tttttgaaaa ttttgaaaaa actattgata 240
tttgtttcag ccatacaagt tagtttaaaa attaataatc tcggt                                     285

```

<210> 815

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 815

```

actcttcttc gttcaccaat gaagtttgat tgtgcatatc aaacttcctg tgtccaccat 60
agccctgaat tctttgccat ctatggtgac acgtttcata ttttttctc ctgtctgatc 120
ctttttatca gcaatccaaa ttatttcacc actaggattt ttagtgtcgg tttcaatttt 180
gatcttatta cgttctgggc aatcctgaat aaagtgtcct accttcctgc atcggtagca 240
tatcacttct ctttttcgag attgttcact atcttcttta acctcacact tcactttcgt 300

```

ggtagttgca tttcgtgtct ggctgcactc atccgtttca agctttaagt catttaaggc 360
 actttcatga gccaaaatgc ttgtgccgag ttctgcataa tcggcgtgct tctctgcagc 420
 taaaatgaca tacagctgtt gtctagcagc cgtaagtact tgccgttcgt tctcgaaact 480
 catgcgtaac gcttggcaca 500

<210> 816

<211> 346

<212> DNA

<213> *Ctenocephalides felis*

<400> 816

actgcatgcg tagtttgccg aatgcttctt tccttntaga tatgaatacg tcgcattctt 60
 gatcccacca cacggagggt ttgaataacg ttctttttgt gatcttaatt tttttttata 120
 ttcttttctg ccgctatttc tataattcgg attacatgtt cgtattttaa attctccttt 180
 tctctagata taggcgattg taacaatcgt gttatgtctt cagcacatcc ttgccaattt 240
 gctttcttga tgttccactt tttgtgggga taatatttat gtaagttaag aattccacac 300
 ctatgtttat aatgattaga agatggtcag aacccaatgc ttctgt 346

<210> 817

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 817

accattatta aaattattgg attgttttat ttgtgccact cttaatataa atttgcata 60
 tngtagtatg gtgtggatag tatattttat gtagaatttg agggtaacta tgtatatatg 120
 catcgataat ttttcacgtc gacctccatt gcatgtcaag ttgcagacgt tctgtttatg 180
 tcaacattat caaggtaatc gactcaact caacaatatt tccatatccc ctttttggtta 240
 tagctaaaaa caatttggtt attgtattta agcatttaat aatgtgttac aacaatagaa 300
 attgatttga tgtcttgggc ttgccatcac taacagtgtc acgagctttg gcttggcaag 360
 caagttctat actcatctgg gcgaacttga tatcaagcag tagtgatata cgttttcact 420
 tgaaaacatg aattataaat aaatttgcag ttgaaatagc acttctggga attctgcaga 480
 acgtaaaaat ataatttcaa 500

<210> 818

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 818

acaatagcca taaagcatga tgaaataatg tncacaatag tctctaagaa ttccattgtt 60
 ngaaggaaaa gttgaaatat tattatgtaa gttaaacaga gttatatgtg aagtattatt 120
 ttctggtgtt aacattgtga gcacttcaat attggaatta ccccatatac ttgttatata 180
 ttgtgcgcgt agaaaatgct cgtgtaattc ggaccgacac ggtggtgaat gtgatgcgtt 240
 atgatttaaa tattttttat taaatggcct gtccactttc tttggtttat aagtataat 300

gatcttatta catctcgtat cattaacagt tctttaattt ttcaataatc gggaacattt 360
 cactgctgct ccctgttata taagcactaa gtttttgaat acttcttggt attctaaatt 420
 tgtttaacaa ttgtaaaagg tcgttcttac cttttaggaa aaatgatggg tatagcacia 480
 ccattagagt atgaaatttg 500

<210> 819

<211> 431

<212> DNA

<213> Ctenocephalides felis

<400> 819

accgataatc tctcaagaaa tgctaattctt ttaagtgaat ttctcaaccc ttaggttagc 60
 caaggngttg aagtattatt ttttgggcaa acggtttttt taatgagagg aaaagtttga 120
 ttgaagttga ataaaaatgt agaaataaag ttgtcgaaca ttgtatttga gtctttggac 180
 ttgttaagca aggtccatga ttcttttca agaagacatt tgaaaatcaa tttatttgat 240
 tcatcaaaat aacgtttgtg taagataaaa gtagatttag aagttgaaaa attacaaaaa 300
 tttaatatta tgcctcgatg gtctgaaaga gtggtattta taacacgcga atcaaagtct 360
 tttaaatttg tgaagaaatt atcaatgcaa gaagaagatt gatgcgaaaa acgagtaggt 420
 tcatgtatag t 431

<210> 820

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 820

actgaaaata acaaattttg aattattata gttttacagg tttattttat ctaataaaaa 60
 angntagttg acattttcga aatatgtgaa atatatttca acttacggaa aattgcaaat 120
 aaatctgtca tgggcatgac agtatatgta tatttagcag tatatgtaat tgatttgtcc 180
 acttttatcc attgggtaac atcatattta ccaatatctc tgctattctc acatctgtca 240
 atagctgctc cacatctagc agttctgcct ctgtccgaac aggaaattta ttataaactg 300
 ccagtgtata atgaggcaaa tcatccttca tatcacactg gcatcactgc ttattaagcc 360
 tattcattaa aacttggtgc cgtaatgaat cagccttttt attaatattg agtgcaaaaat 420
 ctgaacaata tacaacctta tactgaggtt taccacaata ttctatcaaa ggtccttcga 480
 aatgcataga catctcacia 500

<210> 821

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 821

acaaatagaa aaaatactta tttttttata acttatatac catatgaaaa ataataaaaa 60
 ctttatttgt ttacgtcact atgctctatc attatttacg aaaaattttt atatgcttaa 120
 agctttttgt taataatttt caataaaaga ttcaactaaa taattatata atataaataa 180

```

aggattttaa gtttatttga tattatataa gttatttagaa tgaaatctca ctacataaga 240
taaaattcaa ttttatctat gtctcatcga aatagttgta taattttgaa tttgtgacg 300
ttttttattt tatttaaatt tagttatatt tgaattgnta gtatcatatt ccattaacca 360
tatttcatag gtatcaatac aacttttata ttcattattat atatttataa aaaatgttta 420
tgaaattttt aaataaatgc aatagcagaa tgtattttca ttagttatac cgaatatagg 480
aaagccagga gcttgtgnaa 500

```

<210> 822

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 822

```

acattaaaaa ttttgttag agttaaattt gaacttgatg acagtgcaaa aaaataaata 60
taaannattt aaaatttgta tgaattcaag ttaaaatatg tatgaatctt aataattaaa 120
ttttgtgagt aattatatat atatatataa atagattttt aattaataga taacaagttt 180
ttagaactac aacaattgta ggagaagggtg aacatcttaa ggaccaagag cgaaatcttt 240
gaatatcaga aagaaatggt tcaaaatgat acgaaaaatg ttttaaagtt ataagaagaa 300
attaatcact tgaatttatt tgaataaaat cttattttaa ctocatttat taatactcat 360
ttccaattga acttctcacg aaatttataa aaattgaatt tattttattt taagttagtt 420
aagagttcat attactaaaa gttaaatttc attatgtatc ctttaatatg ttcaccgccc 480
tccccataat tttattaaat 500

```

<210> 823

<211> 240

<212> DNA

<213> *Ctenocephalides felis*

<400> 823

```

actccatgtg tcataattct attattcaat atgtgcaaat tacgttctaa tataaatcgt 60
gacaatatca taatatattt atcgtggaaa taatatagca attgcaagct aactaatgtc 120
tcctagcgta ggagtatttg taaccgcgcg gtatagcggt tccacttggg ccatcatcgg 180
ctgccaaatc ccctccaaga cctgctccgg ccctgccccca tggagatcgt gcttcggcgt 240

```

<210> 824

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 824

```

acctaaattt caaaattgat ttatataatt ctatatcctg cgtgtcaaat taaatctata 60
tttaatacct aatattttaa actaactacg aatgaattca gtgtttcata catacataac 120
atctctggtt tctagtatac tattgttagt ataatcagaa ccactataaa aaaagtcaact 180
ataaaaagtg aaacctaatt ttctaagtac tattatacta gagcacatga taagaatgca 240
gaagcaatat aaatctatct ttttgtaata aatttctata ctattactat tacttttctt 300

```

```

agtggctcgt aatatgcaaa caatcactgc caccgcagta acttcagccg taatttatgg 360
cacatcactg ccgatatgat aattttctat gcttttatta ctctgaaaag cgtttcgttt 420
tggccacggg gtcggttgga aaattttcat cgggtggaac ttgccgtaga cgctctcctg 480
ctgctcccc cttccacacg 500

```

<210> 825

<211> 370

<212> DNA

<213> *Ctenocephalides felis*

<400> 825

```

acttgaaaat tactaccctt gtagagagct agcaaagagt ttggtgggac taattgttta 60
cttccaaaac tccgcataag aacatttgca ataaatgac aataaatata tcttcttcaa 120
ttagatctta gtgataaatt aatagtgtaa ttagaacagc accaaatata taaattatgc 180
caataaatca gtgtttcaca cagcactgct acaaagggtta aactaaccta gcgtcttgag 240
ttaatcggag gagagactca acacttaatc ttgcaataat cttgatatga tattgtgac 300
taagcaataa ttttatctta agataagaac tttttcacca tattatgggt agcttaactg 360
tattgtcagt 370

```

<210> 826

<211> 166

<212> DNA

<213> *Ctenocephalides felis*

<400> 826

```

acaaaaagt taaaatttta agaattagca gttgtttaag tgtggcatca aaaagttgtc 60
acgtgaccac gccacgatt gcaaaagaaa ggggaagaa gaggggtata tcatggccga 120
acagcgataa ctcaaaaaat aattaaatct ttaaaaatcc tcgcgt 166

```

<210> 827

<211> 304

<212> DNA

<213> *Ctenocephalides felis*

<400> 827

```

accggtagaa aaattgttga taatgtgcgc attactnatt cgattttcaa tatttgcgat 60
gaccantaag tttggtaggt tttcaaggaa ctctcgtcgt gaaaatacta acattcatgt 120
tacaacacat agcaaataat atataaaatg aagtttgaat agcaaatact agaaaaaaga 180
caaaatactg gtttacatgt atcaaaaagc gtatatattca taaaaaatgt atgggtgggc 240
tagacagacc actccgaccg tttggagtat aaaaaagtta atatctttat aattatactt 300
ttgt 304

```

<210> 828

<211> 352

<212> DNA

<213> Ctenocephalides felis

<400> 828

```

acgggaagtt ccagcaattt gccttcaagc acgatnccat acatcactag ttttttttgt 60
ttatggggat atattacttt cgattattac taaaacaaca gntataaaac tttactattg 120
ctaatagaac gaatntttct gaaaaacgtg atatgggtta aacataggaa attatagtaa 180
attattcatg agagtatatc aataagtcaa taaatatttg tcttctgaat ctttttacct 240
tnggctctgg ttaaatttgc ttactaaata tagaattttt agctttataa tttatctata 300
ttcattanat ccggtccaaa ccataataaa tcagatttga tacaagatac gt 352

```

<210> 829

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 829

```

acgttgcaaa aattaagcaa atcaagacta ccgtattttac gaatatgtcc ccaattcgct 60
gcatacatat acacataccc gcacactagt gattcggtgt ctataaatat cgtgcgtcat 120
tgatagaaaa caagtgtatc tataagcttt gacattatat tacacaaatg atttatcgta 180
gatgaaataa aagaaacatc tgattctctc attactacca ttttttatgg atatgggaat 240
aatggaaata agtaaaaaaa atcatatatt ttcttgctaa agagtagtca tttcaaactc 300
aattattagg gttaaaaatt aaaaagaaca tataccgtaa ttaggtcaca atattctgtg 360
gtcatcgcca aacttagtaa caccaaaaac accactaaat ttaagcataa ttgagaataa 420
aagactaaaa taattcaggt ctacttttcc taatgcgtga cactcacgga anacgttcaa 480
tgcttcaatg tgtgacttaa 500

```

<210> 830

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 830

```

ccttaaatct gtatcttaaa aacatttaag taatgcattt ttaatatatt gacataaatt 60
attaaagaat caatagtttt aatatataat atttgacctt gccaaaaacc agatattggt 120
tatctgaatc caggtattgt agttggcttt ttcttggtat gtagtttatt acaagtcggt 180
taaaaattgt attggttagc tattttcaac aatcttattt gaaaatctgc tttgttagcg 240
aattacagag ttaaaactat tatattttca cttgaaggca tatttttagat gaaaaaaatt 300
ttaggtgaaa gccaatatca gtaggggaga caatagatca cttttcttct tataattaat 360
gagtcacatc cagcagtagt tttgttataa attttttttt gaaatcagtc aaaaatgtta 420
actactaatc atcagtttac taatcagcaa aatattcggg aatttaaatt atatactgag 480
actagtcgaa tcatcattat 500

```

<210> 831

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 831

```

aagaatatga acaaatagta gtagcaccag ttcaccctgg tttagatgta caggaagcac 60
aactaaatga agataatgag gatttcgcat caaggcgctg ataccatcaa tcagctactg 120
tgcatggaca ttacgtaaac attgacggat agttgtttta attaatgac acctaataca 180
tatttgacca gtattgcaaa tttttgagtc acaaagctat tgatttagat ttttatatat 240
ccttataaaa gctatttcta tgggtataatt tatttaattt aacaaaaatt tgcaatatta 300
gcttgtatgt taaaaagctg attaaaattt attgtgaagt atctaattta ttaaaaaaaaa 360
tctaataata tgaataatat agaaatgaat gaaaaccgac tcgagtgcag tcaacattac 420
tgataatgtg atttgatgca ttttgcttta ttaaaggcta aattagttca aaaaggccag 480
tgtttaattt aatattttat acttatttaa ttcaaataat taatcactcc agttgtatta 540
taaataatgt                                     550

```

<210> 832

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 832

```

gngtgcnttt ggtgactgtg actgtactcg tactgtcaac atacttgaag tatgcagttt 60
catgcaaaact tctacattgt cattctcgaa cccaaatgac ttacctattg ttttcttta 120
gtaaaacaat gattgtgcta aattagcaaa agcgttcaaa ttttattatt ataattagga 180
actgttgttt ttagtgactg ttattatcca attctaataca aaaatgacag acacacctga 240
taatgccga attactacca tgggtgaaga tgtttttgca ataacattaa acccagaaaa 300
atttgtggac tgtgaacaaa aaccagatta tattcaaatg atttatctag aagaactagc 360
agaaagtgtg aagccgcaaa aacacattga cattgagact ttagaacaag ctctttttga 420
aaggttgatg ctaacaaata tcacagaatt tgnntaccaa aatccagtaa gccccatat 480
atagattatg tagttcagaa taaagcaatt tctattaaat ctgttatgaa agacttagaa 540
gtacatgctc                                     550

```

<210> 833

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 833

```

gnngctnttg aaacagatcc gaacaatcga tcgatcggag cagatttttt tttgataata 60
gtaataaatg tgtattgttg tggctgaagt ggattaaaat aaaattaata ggttgataat 120
aataataagt tttaaatttg aaggttatcc attacaatgt gtaaaatttt tttgctaaac 180
aaataattct agacaaaaat ctaagtgcct atcatatagg cacggactat agacaaaaaa 240
atacaaaatg tttccaaaac attatgattg ttcttaaaaa caaattgtgg acttttagtt 300
gaaaatgaaa tgtgatttaa aaattgtcgt ccaaaaatat tggtagtagt gaatgttgat 360
tgccaaaaac agtagctgga aaatagtgc aaaaacaaag gttttggtag tgttttttatt 420
tgcaaaatat tggcgtccag attgtgatga taaattgat agttgagttg acatagttgt 480

```

gtacaattaa taaaacaaag tngtntaact tcaagacttg ctgctcttca caaatctgat 540
tgaatataat 550

<210> 834

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 834

atcgtagcg cgatacggcg acgtccgaca atattacgca tattcaacta atttattcat 60
atcataacca accgttcagt tcaaactaaa ctaaactaaa ataaactaaa ccaaagcgaa 120
agctaacgac taacggggag gataagcggg gggccacgag gcgacccag tttcatttta 180
catgtgtgca cgtatgcgaa ataacagttc gtcgacaaga cgttgtacgt ccgccctata 240
gtgaaacacg aaaaacctca tatccgatgg gataaaatcg accgaattca gcggacgact 300
gaagatcgcc gcattcaacg tcctaaagtt aacaacttag catcagttgc ggcgcggtga 360
gagtgcgccg gataggacag cgaagcgatg atcgatccca gttcgtctga agaagagagc 420
gaggaagagc atggaggagg cggcgaggag gtcaagcagc agcaccacca tcacagccgg 480
cagcgcgccg agcggagtg ctcgtcacag cgaaggcaac catacgtca ccggcgggcag 540
tccggcacta 550

<210> 835

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 835

gacagtttgg ttgtgtcagt caacacttca aaagtcagcc aatgaaattt gttttatatt 60
tgattggcgt tcattcgaat tttctttgcc gaaaagatta gtttataaat taaacctatt 120
tgtaattgct taatgcttca ttgattgttc tgttcatctt aaggttattt taaacatcta 180
acaatctggg ttttggtaat aaaaatgcct agattgtcta gattaacttg tgctgtggag 240
gattgcgagt ttagtacata tgatagaaca ataaatgaat tacgcagagt tcagtttttt 300
gcattacat ctggattctc taacagagat cgtaggtcga agtggattaa atggctcagt 360
gatatcaatg gtgaaaattg ggaggtatgt aagtattcac atgtgtgctc tctacacttt 420
attggtggga aaccttcaaa catgctttta catcctgata tgctccatca ataaagactc 480
gagatgatta taccattag aagaaaagat gcctggcaag tttgaattat aaaagcaaaa 540
atgcaatnta 550

<210> 836

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 836

tgcacgcat caacgaccac cacgaagggg tgtcatgcgt cggcacggat ggctcaacgg 60
caaactctcg cttgctgtcg agcactgtaa gatcgacacc ggtcgttctc ctcagcacgg 120

```

acggcggacg agctcgtcaa tgtaatgacg tagcagcgga cgctgcagtc cagatacaaa 180
cagcgacgga ggatgccagt catcccggcc aaaaggacga atgggttcgtc taacaagtag 240
gatcaaacat tggtcgcagg gcgatgctca tgaattggaa atctcgctac ctatgacaat 300
tccatgaatg aaaatcagtt gcacatttta ttcataaata aatatagata aacaataaat 360
aaaacgattt aaattagtat aactgtttg tgttttactt tgatatgata ttgcattata 420
taatataatt agcaacccaa tttgataggt gtattttgtt gaatatattt tcagatgggtg 480
aaagatatta gataaataaa ataaaactaa attattttct caataaatta ttacttcaca 540
caaatatttc                                     550

```

<210> 837

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 837

```

gcaaaagcaa tgactgtatc aaatggcaat ttagtagatg ttagattttt tggagcacat 60
gataaagcat ggatacctat gaaggattgc ttgctttata gtgagaaaga tccaaatttc 120
agtgataaag gaaaacgctc tgatttcacg gaatcactta gggagttagc tatatatgtg 180
aaaaatcttg agcaaaaatt tggaaaattt tgtcatgcac cattcaaaac tccatattcct 240
aatgatcaag cagctattta tagtataatg ttaccttcac ataaattcaa atcagatatt 300
gcaataaaaa aaataataac aaaacaaaaa gtttgtgaca taacggataa actactagag 360
gacacaaaag gtaacatgaa aataaataat tcgttagatg aggatagtta tattgaagga 420
tatgatactg aagatgagga agcactaaaa gatgtatcaa atgaatctgt gatatgtaat 480
gatatgaaaa ttaaacaacac ccttgcggtgc cgtgttagaa tgagagnggt aaataattca 540
caggaaaata                                     550

```

<210> 838

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 838

```

atgacagcca tataagctat cataattaaa agtgctttta ccgttttagta ttcttttaga 60
atattaacta aacaatcatc atgaaattct acggtttaat gtttgtgttg tgttttgcaa 120
ctctttccac atgtctacca gtggacaaat ccgtagaagt tgaggttttc agcagtgaaa 180
gcgaaattct gaagaagtac ccgcaagcca agcccgtga caagaccac attgatgatg 240
gtaaagctac ttatgaattt ggggagagag tacaaggcga caaattgatg gtcggcgcaa 300
ctgatgtata caacgcccc aaccgcaaga tgttgccctg aaattcaact ttcccggaaa 360
agtaccctat tccgtcacct acgcctctgt cgaagtccta caagattctg aggtcggaca 420
ggctttcatc gtctcggagg aatcggccaa tctgaaatcc atttggtgtg ttagctgca 480
aaattaagca agtcaatatt ctacgaaatc tacgccatgt ctcgttaaat cttaatgact 540
gaatcgtcgc                                     550

```

<210> 839

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 839

```

aaattgacga gtcaagaaga actactgcc a ttaaactata agaaatgtga aaattggtga 60
aaagcagtga cttttataaa atatcaacaa caattctgtg tgccatattg gccaatataa 120
acttattttt gtatgtttgt atttaattatt tttttaaaaa ttttagcgaca cgaaaaaata 180
agaagcaata ttattgatct aataaacagg ctgcttaaaa atacctctaa ctacattagt 240
gattaaatta taaattagca attgcgaaag ctttttataa tactaacaaa gatattaatg 300
tggcagctga agtaaatgat acatctggta gctaataatac tgtgatgatt atattttgct 360
tattacaaat gttattaaat tgtatattat tattaatgag taccaatttg taaataggaa 420
atatctttat tcagcaattg tgtggaaagc atagtcaatt ataaatatct ataaaattat 480
tgtattgtaa atctaataac taattataat aatgtatgaa tatgaagcaa tctataaatt 540
tgngcctcg

```

<210> 840

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 840

```

aatcggcacg aggtttaaag gtagtttatt aaatgtgagt ggtgtttaaa tttattaaaa 60
ataacgatca aatctaagtt ttacaactat ggctgctgat gcaagaactt attcgatatg 120
tttgggtgta acttgtatgt ttgcttcgat tttgtcggcg tacgcacttc ttgtggaact 180
ttcggctgaa cttcatcctg atcaaccagc catgtgcgat attggtgaac atatgagttg 240
cagtagagtg ttgacatcca ggtatggcaa aggctttgga attgttggtc taatattagg 300
agaaaattca aaattcaacc aaccaacggc atttactggc attatcttct actccttcat 360
ttctacttta gctctcatag agaaacgttg gacagcaaaa attcaattag ctttaagttt 420
catatcgatt cttctctcaa tttatttggc atgtattcta tattttgtct tcacgatttg 480
nggtagtgtg cgtaccattt acttttaaat taattaattc atacttctta taaaagacac 540
agttgtagc

```

<210> 841

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 841

```

ngtncngcac cagatttgg a tntncnctg tgagaaccat ggangggcaa ttgatcangt 60
caacttggtg ggttantata nggantacng catctaccat ntgcgcngt ttaanaagaa 120
cntggcttga gtgantantn aataacagnc taacctgccc ctacgangat gannaangcc 180
ntttcaantt cantgggagg aaggtancag acatatncnc ttttaannng aaagctggan 240
ntgaatgatn ngcatgaaat atgtaactgg cttacgtgac ctgttntact ancntaattg 300
ttatgcaaaa agcgtctttn ttatnaacng ncaacaagac ctttcntta tnnatntcac 360
tatagancaa ttttnngacn angacnatgt tgatttttct nnncanatcc tanannnnn 420
ttngganaca ttntgtagnn tttnnnnnat gangncanaa ttcnngagtc gatgttctcc 480

```

antatgtttc aacgatttnt cctntacnta tncnnngnaa catttncagg nacaacctca 540
gnnangnnc 549

<210> 842

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 842

aaaaggatag cacagattgt gcaccagaga aggacagaag atcaggacaa cttggtggta 60
aagcagagtt aggaaaagat ttaccatgat ggttaatggt tgatgaaagt ggtttgagtt 120
gttctgagaa caaggataaa ggataacagg gttggagcaa tttttttgc gaggacaatg 180
atggttattc aagtcatatg ctacatcatt gttattcttt tttttgtctt cagccagaaa 240
aatgtaaaaca aatcacgtga ccaatttact accaaataat ttttacaatt tctgccttcg 300
attttaaactt ttagccagga cacaaacctt tagccaggac actaaagagc aatttttttg 360
cgaggacaat gatgattatt caattcacat cctacatcat cattgttatt catttttttg 420
cttttagcaaa aaatgtaaac aaatccgtgc gattttacta ccaatttatt tttacaattt 480
ctgcctctac tgcgagatta acttttagca ggcacaacct ttaccagtca caaccggttg 540
aattttgaa 549

<210> 843

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 843

gcgaagagag ttagatcact gtagaagaca gatttcagaa cagtccggtc aaatatctcg 60
tttacaatct gagttaagta ttagccaaaa aaatgaagga caatatacaa caaaattagc 120
tacagctttg gaaacagttg aaaaaaatat ggcacggagc aataaaaggg caatagatgc 180
tgaaagtaca gttgcaaagc ttaagaaaca gatttcacaa atgacgtcag agatgatggt 240
tcttcgaaat gaaaatacat cactgcgcta tgggccagct gcaaatgatt ccaatagcat 300
gatgagatta tcaaatgagt tgcgaactgc agctagtact gcagagtcgt cactgaggca 360
actattaacg ggtgttgata atttaaggac tcttgtagtt ctttagaaag ctctaaccga 420
atatttgaaac cttctgatga caatttctgc gaaaatgaag atgaagatgc cggcctgact 480
ataatgtgta gtgaataaat ttntcattca aatgtcttgt attaaaataa atattctagt 540
ttatatgct 549

<210> 844

<211> 548

<212> DNA

<213> *Ctenocephalides felis*

<400> 844

aagcacgtga tataaaaatg aatatttgaa gttatgtgtt atactcatalc ctcaatttgt 60
atcgtgctta cgtccaagtg aattattgac tgatatgtct atagtggctt ctatcatatt 120

```

tagagtattt tgaagctttg gcggtatgaa gtaagtagca gtatgcggca ttctgggtcta 180
aagcaacttt ttacctcaaa acaacatttt acttcgactc tgactttgca gaactgaatg 240
gtgagtcaat gagcgcacca cgcttaacta gttaaggaaac gatgcaactt cgaataaacg 300
caaaacgatg caaagtgagg tatgggtgtc tacatttgat gcgatataat ataattttt 360
gtacgtattc agaccgcacg tgaagagcta accgccaggc tctgcgtctg gtgacgtcca 420
gcaaattgta gtgatatcaa tgtccgattc atcattaact ggctaccaga catctcgag 480
cagtctgacg gattaccagc atcactgact cacccaatcc ttgcgtcaca ccactctcat 540
tcaaccgt 548

```

<210> 845

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 845

```

acgaactgaa atcaactatt aataaaatat acctgtatct tttacctgtg acggttctat 60
ttgtgttgta ttttgacaaa tacagtttct gtttgcgac gaattatata tattataacg 120
agaattgtgt cataagtaga agaagttagc ggccaagatg tggcgattgt tgggagccgt 180
tcttgttctt tctgttgtca acagtcaagc ccaattcgag gaccagttct tgagttggag 240
gcgagatgta ggtgccaatc gtggaagcgt ttggcctgga ggctaccaa atgtttaccc 300
tcataaccag aggcattgtc ctaaaaaac acacaaggaa gaagaggctg tcaactgaaag 360
ggaccgtgaa ccacttgagc ctcatcctga ttgggcaggc cgcagaacag ccgatacatc 420
cgacatcgaa caaatcgaga ctgttcctga attgctgaaa ccagtgcaga agatagtcgt 480
ctgatgtcga ttcttggtgc cttctctcct tggaggactc ggaggatttc tgtgacaatg 540
gcatactct 549

```

<210> 846

<211> 481

<212> DNA

<213> *Ctenocephalides felis*

<400> 846

```

ataaagctta attatttttt gggaaaataa gtctctacgg ccacagtagt tttatttggt 60
gctgtgagca gtttatcttt atactattga gtgtttagaa aaatcacaa taagtcataa 120
aagccataga ttctactttg atagtgttga ttagcttga taattttcat taatcaaaat 180
cagattaaat ttgcgaaacg cgggtgtgta gtaaattgac ttcattattga tatggaatcc 240
aaagaatata aaaattaaac atagaaaagc aaaatttggg tagtctttaa attatctgaa 300
acaatagtta gtgttttggt gtttaataga aatgttagat aaaatgaaat acgaaattag 360
tattataaaa ttgatgaaa tatttatgtt gatataattg ggaactataa atgtgctaaa 420
ggtgtaaaact attgtatgta catgtgcaag atgttaaata aatagtatca ttgtnaaaaa 480
a 481

```

<210> 847

<211> 548

<212> DNA

<213> Ctenocephalides felis

<400> 847

```
gaagatgtcg tggaagacaa agctacattg cgcgaagctg tactgaaaac ttgggcacaa 60
ctagttggcg gttgtctgat atttcgttat gtacaattat tttggtattt ggagctttct 120
ccaacgcata caggaagagc atttgaaaac tgcacggctg atttacaggt atctcctatg 180
ctaggaacgg caatagaagg aattgccacg tgcctatgcc ggctgacgtc gaaagtgatc 240
tctcatcacg aaccagatt tgcgcggcc tttagattcct ttgtaggaac ggcacttggt 300
gtggctgctt ttaattactc ggggtgatat ttcaatccag ttctagccac atctttaaaa 360
ttcggctgca tgggacattc cgcttgggaa cacgtgattg tgtactggtt cgggtgcttg 420
gccggacact tgcagcagtt gcgttgtgga ggattcccaa attagaaata gactaatcgg 480
tcgaaactaa aatcagcgta atcaaagcat tagtcatatc gatcaaaca atatacaaaa 540
ataagaaa 548
```

<210> 848

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 848

```
gaaactacaa aatagtgtc aacacaatga actccttcgt tacaactggt gccatcgctc 60
tccttgcaagg aacttgcgcc caaggtgcaa caactgtgct ctctctacc aatggcaatt 120
accacggcaa ctatggatac ccatctgtct tatcccaagg tttcaacaat ttcaactcat 180
tcccaactac ttacgatcac tacaacactg gagtagtga tactgttggt tcttctcccg 240
tcgttaaate ttcagtcaca acaactcctg ttgttgatac cgttgtttct actccagtcg 300
tcaaatecac tccagttggt gcaactccag ttgttgaaac tgttgccaca ccagttgttg 360
caaccaccgg ttataaccac ccagttgtcg caaccaccgg ttacaccact actggctaca 420
ccactccagc tgtatcgact ggataacca ccactggata taccactcca gcagttgctt 480
ccactggata tactggttgg gaagtatcgt ntggtttggg aggatacgat ttacacatct 540
attcaagga 549
```

<210> 849

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 849

```
ggtaaatcta gtaattattc gaagaattta gcaaaataat aatttttgac aaaatggcgg 60
cttcttaaaa aaatcgtttt ttggcgaaat ttaacctta aattgtttat aaaaataaaa 120
gtatttatcg gatcgcgaaa atctttgatt aaccactaaa aaatatattc tatgcaaatc 180
ctattattat aaattattat aagactgttc aaaaatgttta taatatgaaa atataagaga 240
ctctccaccg attcggaac ttctaataac tccaaccggg gttgtctgca tcccttcttc 300
tatctcaact tctttttcgg catatgaatt aagaaaacac tgttataaaa tttagaaagc 360
aataactaac agtcgaatca catgcaacta aaatttcctg ttgtttatta agttttttcg 420
cggatacttc ttccatctca gccgtntttt cttttcaa at tgcgaacttg aaatattccc 480
agaatgaggg aaatttctgt gtgcatttta aatatatgac atcagaaatc ttttttggaa 540
```

actactgtt

549

<210> 850

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 850

```

cncgcttattc gcatctctaa caaattcgca aataataatc aatttagtaa ttaaaaaaaaa 60
acaattgcac taaaatcaat tcaataaaca ttacgaaac gcgaattctt ttaatcctta 120
gtgtgtgtgt ctgtgtacaa taattcttgt taacaattac ttattattgt gaacaataaa 180
ataataagag ttaatatataa cattttgtta caaatagttt aaaacaattc taattaaata 240
attcgtctcg tcctatcggg taacactatc aaggaatgct ttgcacaaac ttcacgatgg 300
tgctggtgct ggtggtcgct atggtgacgg tgttgccaga tgggtgtgac ggttcgccgt 360
ttcttgatcg attgttttcg gggtagcgat tggcacgagc ctcttcgaaa caaatcacag 420
gccacaaaac atccggaaca gctacgcccg gagctcggca accggagatc gtcgaacggc 480
ccggaggcgg cgaacttaca aacagatttg caatgctata aatccaagcc cctacgcagc 540
cctggagcg                                     549

```

<210> 851

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 851

```

gaacaggaga tnttggaagc ancactnatc atatggacat gtgggtccag gagaagtctg 60
cngngtgatt ttaaaagtgg gctccanaga atttgtanga gctggcnaca cgccccangc 120
tgcccgccac gatgctgctt cttaaagctct tgaggaattg aagaatcttc ccatgccaga 180
tggaacatgt cctgctgtgc aaggcgatca tgtaactgnt ccaatggagg atgatccana 240
ttctgaatta aaatcaccta tatctcttgt tcatgagatc gctttgaaga gaagtntagc 300
tgnacacttc gcagtatcca gtgaanaggg tccaccacat atgaaagttt ttgtcacaat 360
ttgtaaagta ggtgatnngc aaactgangg agaaggcccg gacnaaaggt atcaaaganc 420
gtgctgcaga ataaatgctt gaggaactca caaactngtc cgattatact aaacagacct 480
gtggagcccc tntgtgcgta ctagaatnaa acgcnacctc tgtccaagan nagnaagaaa 540
tctgtaaag                                     549

```

<210> 852

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 852

```

aatacatttg atactcaacc cataacttcc ataaaattta tacatttttc tatatcgacc 60
taaaacagtt gagtagacgt ggaaaaaaca tcttttagta cttatgagta gatattgttg 120
gtaacaacta aaatctaacc aatgccatta tcaattgaat ttatacgaat gactttggat 180

```



```

tttgaataca gtgaataaaa atttatagtt ataaaaatcaa cacctttaaa attttgatat 240
ttgtcaataa aataggcgat aaggatattt tatctgtctt atgagtatct atatcaaaaa 300
atattccaaa aaccactttt ggaattttga ttttgtcaa taaaattatt attaagttaa 360
ctatttactg gcatttttat taagttatta ttttatgcag acatgtaaat taaaacgatt 420
ttagcaaaat attgttgtgc attacatatc ataagattaa tattgttaaa aatgagtttt 480
actgagaata aataactttg aagcataatg tttattatct caaacattat ctgggtaatt 540
atatttctc 549

```

<210> 853

<211> 548

<212> DNA

<213> Ctenocephalides felis

<400> 853

```

ctggatacca tcatttttagt tatgtattca taaaaaatca tttttattga cgaactgtat 60
tggtgatagt aacgttagct agcacgatat caagcaaaat tgaggtaatg aagcagattt 120
tcctttggtt tttcatattg taggattgag ttcacccaaa tctatatcaa attatttatt 180
agtatttttc gtagtctttg aaagacgaat ttggaataga tttatattta aatgaagtga 240
agagaagttt ttgtattgcc ttgattgttg aaatcaaaaag ctttctccaa ctagtgagtc 300
ctatatataa tctgtttaat tgtccaatat ttatatattg aactgtcata caaccttcat 360
atttttctac ttcacttgaa atttatggaa aatatgattt taaatgaaaa ttacttttta 420
ggatgccgag attaaaaatc gattgaaatc tactctctca attttttatt atgtatatat 480
ttacttcttg acggagttct atattcaatt cctatgaatc aaaaagtta tatcaagctt 540
tttataga 548

```

<210> 854

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 854

```

gcataatgat aatccacatg tagaaaaaca aattgttgag ttaatatatg atgccgtact 60
atgtgaaaac ttgtcaaaaa attataaaaa taccgcattg tggcaagaaa tttttgtttt 120
gccattctac tccttatata aggagaattt gataaaccta atagacattt tacatataga 180
tacaagatat gcaattgaaa ataaattaca ccaagcagcc agggcaaagg cactgtattg 240
gactcatgca ctttattatt ttgagaagga gttaaagtac tcgtcaaat ctccaacgtc 300
actaagtttt gatgtagaaa aattatataa aagggttctt tgtaaagaga attcagatac 360
aaccgatctt ggctggatac atatcacaca gatattcaaa aatttaccog cagaatgcat 420
atctgtaaaa tttgatggca aaatgattca tggataagtt ccgctggaac caactgtgcc 480
gccagatgta tgtcagagtc cgaattacgc gatgattctg tactcnccgt cgagataatg 540
atgtctctg 549

```

<210> 855

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 855

```

gctatcagtc cacctaaaag caaaaccagc ccattaagtg tgtcttcaaa aggaagggcc 60
atagattttt caaatcagtt tgacgttggc gaaaagcaga aaacaaaaat agacgacatg 120
aatgacatga tgtcgacaaa aaacatcatc gccgataagg ataaaacgaa aatcgacagc 180
aaaggtcttg atgatgtaag catggatgat gacgatgacg acgatgtgat atcagcaggc 240
gacgtttcga aaagtaaate agaacaatca ctggctcgaa aaccaatact gaccacaaat 300
gattcgccaa atatgcaagt gcattgtatc ttcaatggaa caacatataa gccaggacat 360
tcgttagata aacactgtga aggcattgtc aaatgttccg aagaaggtct ttggagatgt 420
gagcccaggt gtgaagctct tatgtcacia gactcctgat ggcaccctaa atgatgtcac 480
caccaaaaat gaaaggggtg ccgcgaaatg gccaccaaac aannatgctg cctgtctggt 540
tggcancgt                                     549

```

<210> 856

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 856

```

acaaccagaa atattgcttt cgattaaaat taaatatata ataaaaaag aaattgattt 60
tcttgatatt taattactaa aaatgaattt tagcatggat tttaaaagaa atgaattaca 120
aatttgtaat ggatgtattt aagcagctaa ttcgttgaac taaaaatgaa aaaccaattt 180
ttgtcttctt catttatata tgtcttgact cttgatattt gtcattcttc tcaatctaaa 240
ttataatttg ttttgacaaa tgaatacaat tataaacata ttataacatt tagttgaaac 300
tacttactac tacaacata actattattt taaaataaaa tatgaatatt ttaaaatagt 360
aattgttgct ctgttttttcg ttaattaaat ttttcacatt gaaaaaatat ttgccattta 420
tatttaaatt atgatttttt aaaagtaatg tgtaatttta ttgtattatt tgaatataaa 480
tttattgaat gatgcacata tcagngtcaa ancgcgtaag agatcaaaat tatctgcatt 540
taaatctga                                     549

```

<210> 857

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 857

```

attagcagaa agctgcaaga tggtcataac taacatggaa ataaaatatt gtatagagag 60
tattgtcatg gatattgata tatgtcttac acaatgtata gataatttaa catgcaaaga 120
ctcacagaca cctattcaac tgtgtcacgc gttcaaaaat ggaatgaaag aaattgcaat 180
agcttgtgct cattttctag aactctgttt agatttataa atcaactgca acaatttgca 240
tacattggac agacatgcaa tattacgata tgcttttaat ttatttccta catttgtcaa 300
attattatac aagggcttaa aatgtgcatg ggactcgttc aaaacattat caccttctca 360
taaacaagag ctgcgtcagt atgttattcc tgaggctcagt taaaatatag ttgaagcaga 420
gtcaacatct gaaggccaag ccggtcgaaa gttatttctc gaaataaatg tgattatgga 480
tataatgagt tgctatattg aaatactcac agcaaaattc ttattaatgc tctatggaat 540

```

gataaangg

549

<210> 858

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 858

```

gttgcggtgta aattgagtat gtcataagacc ttattataat atacattatt ttgtaattta 60
catattatta aaatattcat atgtattaca taagatcttt tgggtgagt gcgtatgttg 120
tatgtatgaa tatcaagagc ttggttcaac cgatttgaat gattctaaaa tagaaaatgt 180
agaaatatgt agatagtggg gtgtgggtat ctatgtacgt atgtgcggat acaatgttct 240
gtcgactttt tcaagagcct ggctcaaccg atttgaatca ttctagaaac attttacttg 300
atagaaagat gtaaatagtg gtgtgtgtat atttatgtat gtatgtgcgg atacaatctt 360
ttgtcgacga tttcaagagc ttggctcaac cgatttggat cattctaaaa acattttact 420
tgatagaaag atgtaaatag tgatgtggta tatctatgta tgtatgccgg attaatcttt 480
tgtcgcggtt caagagcctg gcgcaccgtt tggatgatct aaaacattta cttgtagaaa 540
gatgtcata                                     549

```

<210> 859

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 859

```

gagaccactt tcattgtatt cttcagacta ttcttcagac ctacctctca cctactctac 60
ggttcaactca gtgcctctct atggagcccc cctggtacac agaagtgtca tcgttcaacg 120
acctgtgtcg gtgtacacac catccccgat gtccgtggtt attcgcacca ggccatcagt 180
cctggaccgt gaattcgacc gcatccaaag gcgcgtcagg cccaccacct acaaaccagt 240
agaagatttc ttaaacagca gcagcacatt ggactttgac gatgaaacaa gaaaaatccg 300
atctcaagca aactcacttt tgactagaat acacactccc gtacatagac cattgaaaac 360
gatattcttc agtactgctg gaggatacgg atcaataact cttcttacc ctcatttgga 420
ggaggaatta tcccacatct tccaacctct gagcaactac cgcaaaaata tcggcctggt 480
catttggcgt gcgtacgatc cgcagcgaca agcctcaaca agangaatct actaccagaa 540
gnggaaaat                                     549

```

<210> 860

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 860

```

aatctacgta ctttcaactaa attggaaaac atgaaagtaa aatattaagc gagttttgta 60
aaaatctaga attaaaattt ttctaagtga atttagtaat aagtataaac atgaagagaa 120
actaaaaaat gcccttaatt ttttaggaatt ataaaatgta attaatgtga ttgaataatt 180

```

```

tttatataaa aaagctaact aaataactgt agtagatatt attagaactt taagatgtca 240
atcactcgaa attatgatgc aaatgtatgt aacaataaga atgatatccg acgttttggt 300
ttctaaaaat ttgcatcatg atttcaacat ttgacgtaag tgataaaaaa ttcctaatta 360
ttcaattact gctaattaga aaagagaatt ctcaaacatt gctttttccg ataggcaaaa 420
catttttctt ttgcaaagct tagatgattt tttaatggac agatgttaat catttctagt 480
cgtaaacgat aaacgaaata tttcaaataa tttgtattcn ttaagaaaag tcaatataat 540
gnaattcaa 549

```

<210> 861

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 861

```

atagaagcaa aagacatcaa gatgaaattg gcgattgtat ttttggtttt ggcagtagtt 60
gccttggtt tagctggtga agcaaagcaa aatcagcgta aacatgggca gaggtcactt 120
caaatgctg gacacaaagg agctgcaagg aagcaaaata atcatagtgc atcagccaaa 180
tttttgtcca ggaatcgacg agccaatcga aatgaagagg caacagcaaa tgaggctgtt 240
catgatatag atcgtgaacc agaacatgaa ggagggtgctg aacctgtaga agatcccgat 300
catgaagtag tcattgatgg tgatgtagaa gatcatgaat ctggtgtcga cggatattct 360
acaaataatg attatagtag ttacaacgca gaaagtacga atgatgctat tgaagcagca 420
aaaaaagctc tgaacaaagc cattgcctct tcaacaagc tcgtaaagct ttggaccagt 480
tggcgaagaa ccttgactta gacgtgcagt tttgaccatg taagttctgg aaaatcaaaa 540
gatcaacaa 549

```

<210> 862

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 862

```

atactattta tcattagatc atatggttat aatagaaaat ttaatttttt atactaattc 60
ttgtttttca caataatttg aagaattctc ttcctttaag tatgtattta actttatata 120
caactttgat gatataagaa aatcatgctc tttttattta aatctttag tagataacgcgt 180
tttttttatt accttaatta tatttaagag ttttacattt attagatgtt ttttggaact 240
aggacttgcc aaaataaaaa tcttattctg cattttccaa gatttcagaa taaatttttc 300
tgaaagctga taaatgttca ataataata taccaagcag tccttttccc aaataattta 360
gtaaatatat atttgttgta aataataatt gtgttaaact ataacttttt tttctattga 420
ggttgtgcaa tgtcaaggac atccaattcc agcaaattcg taaagattct ggcgcatattg 480
atgtgtattt tatntattgt atttatattt attgaattaa taataaatgt ttatgggtatc 540
gatngggcg 549

```

<210> 863

<211> 87

<212> DNA

<213> Ctenocephalides felis

<400> 863

```
cacctcgggtg gtgaaagggc agagcaccac gctgaccgtg gccttccagc cggagggcgt 60
aaccgacaag agagagagag aactagt 87
```

<210> 864

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 864

```
cattactcca gtgccaatth taaaacaaat aaatagacac aacgaagatg gaagttattc 60
atacggatac gaagccgccg atggttcctt caaaatagaa tccaaatatt ccacaggaga 120
agtatatgga aaatacgggt atattgatga ccaaggacaa ctgcgagagg tggagtatgg 180
agcgaccagt ggacgagggt tcgaaccggc aggaaccgggt ataaaagtcc caccaccaac 240
tgtcaacact aaaaacgaat actaccacc cttgaaacca ggcgaagaag atgacggcca 300
atacagagaa gacccagca tttattacaa agattctcgt tacaacagcg atgtgagcaa 360
cagtttgcaa caacaacaac cccaacctca atacattcaa cctcaacctt aaccaagtgc 420
tgcaccatcg tacgtgtgcc tcaaagaaag aacttctact ttatcaacaa tgcctccctg 480
ctccagtttc ggaagaccaa aagaagattc taccagctaa gtctcagcta acagcaatat 540
taccacctc 549
```

<210> 865

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 865

```
agtgtacgat gtggtgctca acatgatttg aatacggata actgatcatc ttatggatct 60
tatggatatc tcatacatga acatatatca atgataatgg caactaattc atcggaacct 120
acggttcgac ggaatcggtt ttcacggctg tctacgacca gtgtgacgca actgttatct 180
gaaagttggt cgagccttct tcatcggttg acacggcgtg gaccatcgga aaagcccacc 240
taccgctgac ggccaagcaa caggcccga gaaaaaccga tagatactgt gaaagtttct 300
agtaaaatat caaccgccgt tcctgtgaca attacctctg ccttggaag taccagaagc 360
cggcttgaaa gcaaatattc agcagtgtta gaccgtgtaa aacgtcggga agttatagat 420
catgataaga cattagaacc cagtcattc gtaccacgg cgcaaaaaaa gtgcatcgag 480
tgnatthtag gtgaaaaggc ttatcctatg gagtgcatta gaaccaaagt nttattggat 540
cgcgatgat 549
```

<210> 866

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 866

```

agttgctatc agttaatagc tgtaactcaa acatcacaca acgtaaataa aacaaatcct 60
tatcttgctg tgatatacaca attcattttt catttttcac atatcttaac agaataataat 120
agtacgttcg gatgttccag tttatttgca cgtggaccgg tgaccgttat agataagaga 180
gataattgac agtgaacagt ttttatgaag tgttttaggat attgagtgca cttttcgttt 240
tgtttttgat tttgatggac gttggattat ctgtgattta gtcagagaat gatatatgtg 300
cttgaagtca cagaagatta ttagcacaca tgtatttgga tactctgcag atagaatagt 360
cttcagtatt ttgataacta aagagccata tttttcaaat gtaaaatatt atctatacat 420
tcttttcaag ttgtgtctta gttttcttgc agtagtgctc tttttatgaa gatcttttaa 480
tttagccctg tcgtctatca gtttgtggat ttgatgccga acaagggttg ctgaagagag 540
tgcagacnt 549

```

<210> 867

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 867

```

gaggagtcgg tccttttagcc tggggtacag aaacacatcg aaaaccgcag acgcttccac 60
caaatctgag tccaaaattc ttccatagat cgccaagaga agcattgaga agagtcacta 120
gtctattgat caggaaaggg gcagctggtg gaggcacgcc ccgtgactcg cgtaaagaac 180
gcgagggcag cgtgttcccg atgccgcttg gacaaacggt gcataaggga gcttttagagg 240
aagtggtgcc taaacaaaga agaggatttt tgaaaaactt ttttaagaaa tctaaacatt 300
actcactgga ccagtaaata atcgaaaagt tgacaattta ccgagttcta tgttttttag 360
gcataagaaa atatgtacac tgccctcaac tttagtcta accataatat tagcattgaa 420
tactactgta gttaccggt tagttgtagg attatttatt attctaataa tgaattacaa 480
ttaaccgtct gatatggacg aanggaagt aagacagttg caataaatag tgcctgagaa 540
atacatttt 549

```

<210> 868

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 868

```

gtacgaaagg accacgccct ttgttataac atgacattaa gactcaggta gcttaaataa 60
taatttttta attctataag tatcatatta taggccagaa acagcatgtt atatatttat 120
atccgaaata ataagtagat ttatatacga acagacaagt gtatccaagg aaataaattt 180
aattttattta tattattaat ggtaatttat caaaattcag atatataat atatataat 240
atatataat atatatttta aattaaaaca gcatatgtaa gtatatatat atgccatag 300
ccattaaat tcagagctat ttaattgatt gatgagtact taatcatttt tttgtcgaaa 360
ttgttttaga ttttttatat ttattagat aattgggtata ttatcaaaat attatactta 420
taccaatctg tttttatatt ttttcagaa atattatatt ttattatgaa attattttta 480
gcgttaaaat tatttaaata tttcatagc aggcagcgtt attgaaaact gcttttttgt 540
atcttgtac 549

```

<210> 869
 <211> 549
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 869
 cgcggtggcg gccgctctag aactagtgga tccccgggc tgcagggtga gattaaatcg 60
 tggacatcag atcaaccacc ggacactttt acagaactag ccgtaattga ttcaacgacc 120
 aataaaggag caagaaggca aataaaccaa aaagatggca acctatcaa agcttgtcaa 180
 taagcaattc aattcaccaa ttaaactgta ttctccgcag aacgttcagg aaacgctcaa 240
 caagcaaaact cagttgtag ccaatggagc agttggaatc gacttcatgc acaacaagaa 300
 cgtggataag ccaggcaact tagcaaattc agctgtcttg agaatgcttg aagaagaaga 360
 agaaagacaa cgaaaaggac aaccaccaag tttgaaaaga gttgcctggc caccaccagc 420
 tgaacctgac catcaatcag gaactccaat tttggaacaa gagcctgtct tcgctcagac 480
 gcaacctccg aattattcga cttcaccgca cagcaacagt atcagccgaa cccacgcaag 540
 cttccgcc 549

<210> 870
 <211> 549
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 870
 gctcgggttaa cttatatctg aaggctcctt gacagttggt agtaattaaa tctaatatat 60
 tatagaataa ggtgggttgt gcggttcagc aatggtatca cgctttaccg acatccttat 120
 acaataaaaa ggggccatct cacaattgca attatataac tagttactaa gaatttgaat 180
 attatatatc atagttttat tatgaaattg gataacttta tacaagatt ataagattac 240
 tttataaata tacatatatt taggataaag ttttttatga aatgaagggc tagttgattt 300
 ctttggtttg agatatgagc catttgatgt ttctgtagt aggctaggcc agtttgtctg 360
 tatgccaggc agataattat aatgaaatgt aacttcaaag gacttccata ctctgaagaa 420
 tcacgagttt aattttttta tattttttgt acgtgtttgc aataacttct ttaaaattga 480
 cattcaatgt aaaaacagag aatagtctta tataagtatg atttgagtgg ctcttattt 540
 atatgaatt 549

<210> 871
 <211> 549
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 871
 gctcatttga ctgaacgaga aaagctatat atttatacca tccattatac ggtggatgcg 60
 tagtgagact ttacaaagac ttaacaatt attagtgaac aaacaatgtg aaattaaaga 120
 ctttgcgata tacgaatatt taatgccttt tcttacagaa cattttaaac aattgaattt 180
 tattgaatga atcactctga tttttgata ttgtgagatt tggaaaacat aaattcacta 240
 aatgtatata tgaatgggac cgctcatttg atagattaac gagaagttat taattatacc 300

gaaaagaaat aattgtgtgt tttcttagta acatttggtt ttcgttctcg tgcttcactc 360
 gaaataaatc atctagaaat tttcatgaag cgaactgtgg tgaattgttt tcgtgatatt 420
 tgtgatgaac ttctcgtaag gacatatcac gttgtatttt ctagtgcatt ttgaatctat 480
 ttaaagttat tatatttata gcaagtaggc acatgacgat agcaatgttt attattatac 540
 tcttagaaa 549

<210> 872

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 872

gtgttcgata gatcacatag gcaattttgt tattagtggga atagtttgat agttttccat 60
 atggtttagt gtgtgataaa tcaatattta aatttcaagt gtttgtgtga tatatgtgat 120
 tagaatacat cgatttgata aagtgatttg ggatcgtttg ggtgcatctc atatgcatta 180
 attaaatata aggattgaaa gattttgtat agcttttagta gtaaaacagc ttagtttgga 240
 ggagatttat gaattctcat gagaagtttt aatgaggtga cgagtaatca tatagcaagt 300
 attgacatta ttacatatct ctcaaaagga ctaataaggt aatcatctaa ttgataccta 360
 agtgtgaaat aaatttagta tgttgtggtt tagaatttta aaggatccta cttgaaaatt 420
 atgatacaaa ggtgaatgtt gccagtttgt tatatgccgn nttaaatcac gtaatccac 480
 tccccactct ttaagaacaa tacctcaata ttcattgtta ccgacgataa atagcagcag 540
 ctantcacc 549

<210> 873

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 873

gagaaatgtc aaagtggta atggaattat taaagttaag ttcgaagata aatttagtaa 60
 aaaggtcagt gtagcatta taccctatca aacaataaac gaattagtaa ataccgaagc 120
 atacttatta ttatacactt agacttctca atttttaag aactcatcat ctgtttgttt 180
 attataacct acaaacctca aacatgtctg aagaaacaga ttttaacaaa acaattaaaa 240
 cggaaccgat cgatgattat cctcaagtga aacaggaatt cgatgattgt gaaaatacat 300
 cagatttgta tatggatgat gatatatgtc tgcagcaatt tgaaaaatct gaggttaca 360
 ttgacgagga aataaaacaa gagacgattg atgaccaaga tcatgtgact agtacaaca 420
 aactgttcag atgaaaattc ttatattgtg atgaagaggc agtaattcaa gnaattagt 480
 gtagtacgaa caaattattg gaaaagttca ggcaaaangg aaccactaat aattggaacc 540
 gnttctgtn 549

<210> 874

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 874

```

agtagcgggat gtttcaataa tttgtcttaa ggcacaatgc catgagtcac tagtttaaaa 60
ttttttcgac gctataagca caaatattgt gcacttccac acaaattcgt cattttaaga 120
gggctcgaga actgaagtaa atatttttct taaactttca gcttgtttac ggaaatttat 180
attagccaaa ttgccaaatt taataactta gtaaccaatt tgataattta cgttcggaga 240
gggaggcaag gcaaaataat aaattttaat aatcggttat ttcaacccaa atttgcctt 300
gcaatcgtat tatgttttgt taattatatt tcttgaaata taaaaatgtt ggtaaaaaaa 360
tttgattaca ttgtatagaa tttttttctc actatccaaa ttttgccgcc caaaaaattt 420
gccgcctggc agtagccccc attgccctct gaaatccagc ctggatgngg atatgnatat 480
atatatatat atatatatat atatatatat gaaatgcggn gcccatatat natnggggttc 540
attacaaaa                                     549

```

<210> 875

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 875

```

gcgttgcgtc atacgttaga aatgacaaag ttttacaat tcataagatt taaatgaaac 60
cgttttctcat ttctgtttct tttacaaacc gtgtgctcga tttatgtagt ttttgcccaa 120
gtactactgt ctaagacgca cgccggatat atttcatctc ataattttaa tttgcatcat 180
tttgtgccca ctgttatata aaactaaata atattatttc tttgactaag caagagttca 240
caattgaatg gctggccgct gctgtgttat tttatttcga gacttattgt gcaggaaatc 300
aagatgaaat cacatggagg ccacaatata tcatatcaag ttgttgagta tcgaatggcc 360
aaatatcgag tgaaaattgc acaccgctcc ttcaccggga attgctctga aaataattta 420
tgaagtcttt cactactgct gtctgacact gctcttcacc aggaatcttt ccagaacatt 480
ttaccagctt ttactactg nttnttttca ctgncccttc ccagaatcgt ctgaaatatt 540
taaaaaagt                                     549

```

<210> 876

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 876

```

gatgaagtga atacacaact tgataatagc aagaagttat ggggtataga gatattgcc 60
aaaacaaaaa ataatgtcag aaagaatttt gaaaatgcct taggaattgt aacactgaca 120
tttttatctt gtatagtatt aagaaagggt ttttaagatt tgtaagctaa tatagccata 180
tatttccata ccttgaaggg tatttattat aatataattt atatcgtag tcaaacttat 240
gtatacagat aaatttcaca ttatctatta cttttgttt tgttttgtat tatagtcaca 300
tgtgaaaaat atataatatt aaatttgatt tcattttgcc tgtttattgg ttttgcaaaa 360
aaatcctgta cctaaaatca taatagggtt cgaaatcaca tacttagctt agagtaatga 420
acttattaaa gaaagaaaaa agctgngtta cttatgggct aatatacgng ngcaaatgta 480
aancccaaaa agntttgctg gaacaattgg ggtgatgnat catgtataaa natatagttt 540
tgaaaancn                                     549

```

<210> 877
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 877
 gtccgtctgt caaagtacat cagttaacct caaagatata cttcaaaaag acattaaatt 60
 gttatgaaca attatatgtt taagttaaac atctgatatg tataagcaat tttttgaact 120
 cgattaaata caataagctg gtacacaatt cagtacttca aaaataagat gaataaatga 180
 actggttaaa aatgagaagt aaattgtgac tctttgaata tgtttacgac cgagtgtcga 240
 ccccgttcag tcgatgtgct catcttaaaa tctgctaatt gctataaatt aagttaacta 300
 tagtatgaaa gatctaaaga gttacaaata agagataatg tctgtcgtgg gagaaagacc 360
 atcatcaatg atgggtgcat gacatcatct ggtattggaa atccaagtgt ttaccatgcc 420
 ctatagtgat attttttagaa ttttttgctt gggggctcct acgatgccaa taatatctgt 480
 ctaaatgaaa cattcccagt catcattttt atgaatgggt aattaatggt ataaangatt 540
 tatcttcta 549

<210> 878
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 878
 aaaaaataga gatatttata ataatagtaa caatataata aattctaaaa atgttcagtg 60
 taatgttatc agtatgtaca agcatagctc gagcaaatgc aatatcaacg aatttaaata 120
 aattaagtaa taagagatct ttccatgaat catgtgttac ttttgctgct agaaaaaggt 180
 accagagaaa aggcacgaaa gaagaaagga gttaaagtcg aagaaaaaaa agttgggttc 240
 atcccacata atattcgtgc caaaaataag ttagccgtga gcacaataga caagcatttc 300
 aatgatagct acaaacatgt ttcaagcgac aatgttttca tctctaagtt ttacaaaatg 360
 aaagtttacg attttgcaga agcaatagct gtcataaggc aaacacatca tctacgtgt 420
 acaatgttcc agatgcaaat ctaaatgtta aaattgacta aacatggctg gtggaaaagt 480
 acccgattat ggataatttc acgantgcat gtaccctgc ttcgtccaat gtgaaagact 540
 ntentgac 549

<210> 879
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 879
 atctttaagt catatttgtt gccagttaa ctatagttat atataaatat ataacaaaa 60
 taattgtgat acttcatgcc ttccattaca actgatataa aaattaattt gcgtctaatt 120
 tgaagtcaac attaagttaa atagttatta gtctaaaact catgaaaaag tatagggttc 180
 ccattatctg catcaattct ataaatggta tggaaaatga agctttaaaa tgattgagtc 240
 aaatttgcatt tgtaaaaaag aatgtgtgtc ttacatccat atcttcatat ttgacaaaac 300

gatatttttt aaagtaaact ttaagcttat aaaaatctta aatacatgca tatttatata 360
 tatatatgca caggcaaact ctattttgct atgtcttctc tttggtgctt ttgggaaatc 420
 tgntgaaatt ttatttaata acaatgagag tatgcaatta atttccttgc catttatgtt 480
 ttacatggat gagtttgaga ctaattaact tcatttttta atagtgatat agtcgcaata 540
 tatttgat 549

<210> 880

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 880

acattatcaa tcataataga tagtagtaat gagtatagta atatgatgtt ttctcagcat 60
 tgaatgagtt ttgtcacaat ccaaaatacg caatatttct aaatcgatta aaaacacgtc 120
 acactgttga gaaaataata tattgactta ctcatctttt ggaacaagtt ttaactctaa 180
 ttctgtgcag tttctacct cagaactgaa ctaattttcg agtattaata gatatacggt 240
 aaattatcac aatataaacg tattagaaat atgttcattg ttttaatttt cttaagaat 300
 tagttcacia ttaattagga agatcgccct ccataacctt atttatttag ctgacaaatt 360
 taaagtttct tgactccct tgaaatttgt atatgtttac aattttgcaa aacggagatn 420
 tcgtacacia tttgtttaga aataagattn tagtatggcg cgtcctaccg agaattcctn 480
 gggcagtgag ggaaaaagng tttnaanggt aaactatttt agggtaaaag acgaggtctc 540
 nttaancca 549

<210> 881

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 881

aatcggcacg aggacgattt aaaaagagag caatttctga caaagaacgg gcagagtcta 60
 atcgaaaaac atcaaaaata atagatccta tccctacact gtctactaat tctcaatgcg 120
 aggaaaatgc tgatatattt ccagataact catataaggt aatttcaatg cctatgctat 180
 cccaattgac gcctattgag gctgcagaaa tggacgtgga cgatccactc ccattgttgc 240
 cattagattc cctgttagcc tgactttctg atacacatcc tgggccggcc gtagaagtgc 300
 aagatgctca tcagggtatg cagggtattg gaatggcaga agatgaatta gctggattat 360
 tactatcaag tggatgggat gaatcacaaac tagaattact agattcatta ctggattcac 420
 tttaaagaag aattagaaat tactcatact taaaggtaag caatagtctt gntggtaagc 480
 ctacaagaaa aagactttat ttggtnaatt ttatctaaga tgacgagccc aaaaatttgg 540
 cattttttg 549

<210> 882

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 882

```

gttnaaatgg cgcctattct aaaagaagta aagtctcgta aaccttacat actcttgtca 60
gctcgttagga agcgtgaaat agcacatgaa gctaaaaagg aatttttaca ataccttaat 120
gccaaagcatc cactgtttac tgagaaggat ttggatgtta ccatttgtgg ctccagtaca 180
agtgttgaag acgtcgagaa gaatttatat cacacaacac gtgtaaacgt caaacatcaa 240
agacctttta atagcattaa tgaagaacaa agctttgtgc tttgtgataa tgaagaaaat 300
gtagaagaac cttcttacac acgtgtaaac gttaaacgtc aaagaccttt taatagcatt 360
aatgaagaac aaagctttgt gctttgtgat aatgaagaaa atgtgggaga accttcttcc 420
ctctcacctt tgcaatgcga actacagaat ctgttaatac ccaaactatg acgccagagt 480
gtcaactaaa ttgtggaaat tctgaggcgc atggcataag aatgaactcc agtagatcta 540
cacatatgc
549

```

<210> 883

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 883

```

gttgccggtt gtgaggttat cgtgtgcctt gaatcgctcg aatctaagct ccacgtgct 60
aattatttcg ataactccca ccccgactgg gacatctcga gagtcgggaa gccctggca 120
aaggctacgg cgattttgtt taaatcagtg tctacagttg aacgggtcca cttggacggg 180
aaacagtgtt catacgagat tattatatat ttaaaattga ttgaaacagt gacaaagtga 240
tatagtaaaa tattttacta actgttctta aggattcgaa tcataagatt tctttacatg 300
atggctgaaa tgaccgccag cacgcgcttc aaacaataac accaatcatt ctccaccaca 360
agtgaacaa ttgtgaaata aaacttgatt ttattccaat catataaact ttaaatacag 420
tgcaactaat caaaataatt tgtcggcaat tgtaaaatac ctaagtgtcg ataagtctat 480
atgtgatcag gctaaagcct tgaaaaagaa tcttagtagg aatattagta ttcgtattaa 540
ttaattaat
549

```

<210> 884

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 884

```

gctactccta accaaaaaac acatttttga taagttcggt agtggcttct gtcggatttt 60
aatttttaat tcaatcttac atttgcaggg tcaaataatt taactatttt tatttaatac 120
agattctaac gataatcttt tattttgtaa tatgtctgaa gaaggaacaa cgagaagaac 180
tacgaggtcg cttgccaggc ggctgagtag tgattcaata tcgcctccag ctgcagggac 240
tcctggcaaa aaagcgaggg cttcaagagt tacggggttg ccgtctattg cagaaactaa 300
accgaaagca gttagcactc gtaaatcccg aagattaagt actgacttaa atttagaaga 360
acctggaagc agaccatcaa cacctatc aactgaaagg cgtcgttctc gccgactaag 420
tattgcttag atgaacaacg cccacaatct gtatcaactc tccattgggt ggagttatac 480
aagaagagga agacatcaat atttttagcaa tgaaagatga tataaataat aaatccggta 540
tgngtgtgn
549

```

<210> 885

<211> 496

<212> DNA

<213> *Ctenocephalides felis*

<400> 885

```

agttacagct cctgttaatg ctttagctga aacaagtcaa acttcatcaa tatttggtgg 60
tgctaaacca cgggaagaac ccactgagaa ataagttatc aagttttaac attaattatt 120
aaccaccata tagaatacca tcttgaatca tgtaataatt ttctgattaa aaattctgca 180
aaactcataa caggcgctga taatcttact cttgcaataa attctttaac tgatatataa 240
aatgtatcaa gttttgtaaa agaaaaatca ataattattg atttacagaa taaaatattt 300
attttgttta aaaaattgact aatactttgt aataatatgt aattcttata tatatagatt 360
aaagagttgt tgtagtgctc tttgttttc aaatagtttt aactaatat atttaataca 420
aaacgcttta caaattttac aataattgat gaaaactatt tgagatttta ttctcgaagt 480
acaacttatg tattaa 496

```

<210> 886

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 886

```

agcntaaata acaagactga cagtttagtt ttaacaattc atcatgggag atggaagaga 60
tattgaacga cagccattga ttcaaaatga tggaactgga agccttagga atcaaggatc 120
ctatacggaa ggttctcaaa ccacgacggt ttcccctata ggtcctgatg agttgccacc 180
gtcttaccag ggaagtgcg ccagtgccgt gcccatggtc acttgcaggg tgtgtcaggc 240
catggtcgat atttcaggca aacgcgaaca gcatgtcgtc aaatgcaatc agtgcaatga 300
agccacacct atccgcaatg caccaccagg caagaagtac gttcgatgct catgcaactg 360
tttattgatt tgcaaaagtt catctcaaag gatagcttgt ccgagaccaa attgcaaacg 420
cataataaat ttagcaccta gtctgtgac accacctgtc ctcacgggtg aaattttcgt 480
gccaggaatg tgcagggttt gtgtgctatt gtggggancg tttttttcaa caccctaaca 540
atgcctcgc 549

```

<210> 887

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 887

```

gctaataatg tgacagccat aaatattgta gattaatgta gaataatttg tattgagatt 60
tagattttgt agcatactag aatgttatgt gtgcttgaat aatgcaagtg agggaaaccaa 120
taatttggtc tgtttttata atacatttta gataataatt attggtgaac tcaatcttgc 180
atatacgccg ctaatgaatt aaaccagcag gcatataatt tttgtactta aatatttata 240
taactaaaac tgatacgggt tacgaaaaac acataactat attatttatg tttctagacc 300
cgcatgaatt aaaacgaaaa cggcaaaaaa ttgacgggga tccaaaacat cttttatggc 360

```

```

aactgcaggg tcaaaatcct tctacgagta agtcattttc aacttttatt ttttttatca 420
gcaaatcaaa cagggttcaa tgtcagggtga cgggtgaatca cggggtggat gaatataaaa 480
actcatatca tacgcttatt acatataaca ctaccatttt catattatca gtaattttct 540
aggagnata 549

```

<210> 888

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 888

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atggcatcct aaacaatata ataataataat aataatgaat ggcattttctc gctaacagat 60
attttaatat agcgatttga atagttttaa tttatttgaa tattgttcag agtgatactt 120
tttatatttg ctgtaataaa aatgattatt atgataactt atattatgaa agggaaaata 180
tattttaaact ttttaattgat tacccaagag gatattgatt tgtatatatc tacttgaata 240
tgaatttgaa cagttaacat tatcttcaaa tttttaatat aattttaaata tattggttac 300
tagcaaaaac gtcaagatgt ctaattacgt gttgaaagtc aaatcaaaaag aaggacagca 360
tattttaaga gatctcaaat cttccatgac tctgggcgat cttttactga aactttcatg 420
ttgacatcga tatctaaacc aatttgcaaa ttttatcggt ttttccgcct aaagcattag 480
atttatctga tnagagtaag actttaaagg ngagtgattt nattcaggag atctgtattg 540
tgaaaaaat 549

```

<210> 889

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 889

```

gagaaggga actgatcacc atgaaattcg cagtagcaat tttgggcctg gccctgtgtg 60
gtttggcatc agctcagttc cagaatggac gcatcttaga accaccagta cctgcactct 120
gcgccc aaag gacgatacac gaacgtagcc cagacggcaa aggatacttc ttctcgtggc 180
gtgaccaca attggctggt gttgaggaag attggttggg cgtccgcaac ttctgtcgcc 240
aacgttgcat ggacagtgtc agtttagaaa ccagtgccga aaatgaatgg atcaagcaaa 300
gaattgtcaa tggaaatgtc aaatacatct ggaccagcgg tcgtctatgt gacttcaagg 360
gttgtgaccg accagattta caacctgttt ccgtaaatgg tggttctgga ccgctgaatt 420
gcaaaaactt gcccaaccac agacagacaa caaaacgact ggtctgaagg agtggattg 480
tcttcctcac cagatacaag aattgaacaa ggtggacaac cgaaactgtt tgcagtttga 540
cactttaca 549

```

<210> 890

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 890

```

cgtgggataa aaaatgaaat tatcaattat ttacttttt gtggcttgta tagccttggc 60
ttcggctgca aattttaaac aaggaaggaa agctaaaaga tcgggtaatt tggatgatgaa 120
aaaatcacca agaggttctg aaaataatat ttttaacact ggttttgtga aggattccat 180
cgatttcgga gcaaagactt taattcgtgc cataaattta gcagaaccct tagttcgtga 240
tagttttgac ctaggaaaag atgtaaccct acgtctgatc cgaggagcac caattgacca 300
acatggaaga gcttctgatt ctgaactttt tgaaagattg gatgaacttg tccagaatat 360
aggaaaagct tttgaagccc tatttgataa ttctgaaaca aatgcgagga aaggacctcc 420
aacggaggct agggttccat actaataata atagtaaagg actaagggtg agaaaaaatt 480
ttttgagggc aaaatggagg agaaggatgt gtgaatttga tgtctcaata taaaaaaatg 540
catnaatag 549

```

<210> 891

<211> 548

<212> DNA

<213> Ctenocephalides felis

<400> 891

```

cccttcccc cttccccaca aacatcacgt gtatttttag ttatgaaaaa aaattgtaat 60
tattttgatt tttggatttt tttaaaaaaa aattctctct ccctaaaaac atcacctgat 120
taatggaagc atcctatttg tattccttat ataaaaataa aaaatgtgaa atttagatat 180
actgaatgat tactcgtacc aagagtcgaa acatataaat aaataatata aaaatcaatt 240
taccattttc aaatttgatg aattggttgc aaactatacc aaattcctca attccaatca 300
tattcatata caaaaatacc tatcaaattt tccgattcat ttaaaaccga ttacaatcaa 360
ttccattagg caccagtatt tataaataaaa attttgcgca tatgtgtgaa catatattca 420
ttattttatt agtctgagaa atagatgttg actattcgag agagcagcga aatgtcgata 480
tttgccacct catcagatgt tggataacca accgntaata accgattttt agggggatgt 540
taangcct 548

```

<210> 892

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 892

```

tatttttggg tcttttatgt tttacaaaaa ggatttatcg ttttaagttt aaataatgac 60
aatcttacia attaatctaa acaaaaatgt aacaatattg ctttaattaa ataattcggt 120
tattgttata ttgaatccac aaatatgaat tggtgattat tagcatcggt tatttttggt 180
gtaaataact tatgcaaagc agagttgatc ttataaaaca tctaatactt attttattat 240
acatagtgtg atacttgttt ttattttaaa tacattacia actaaatgta gttcatctat 300
gatttacatg aaaaaaaatt agttattatt tgtagtggt taagacattt tacgcaatat 360
ggcagtaaat aaatgcgcac actaaaaatt attattaata tttttatagg aacgaaagtc 420
tataattcta tacactacat cgctttgtgc aattgaaata atatttttca ttatattgna 480
tgaatttagt atatcaaaac atttaaaatg gttatatgta tacaggtnca ttattgtaat 540
aatgagaag 549

```

<210> 893
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 893
 gaacagtttg ataaaataaa aaattgtgaa ctaaaattta ttttcaaatt tcattaattt 60
 ttaacaaacc cttttccgta atattgacgg aacctgccta agtgaagcaa aggacgatat 120
 cggttgctgt tggtagtgta gtgaaactat aaaattgtga ataaaactta aaacatcacc 180
 aaaaataatc cacacacttg cagtaaacia attattattt gtctctatag acagaaccaa 240
 atagaagaaa aactcagctg ccaaatacag attgacataa ctgtcaatta tttttatgtt 300
 gatcattttat taatatatca attttgactt tcatcgattc tatctcggcc ccccttccca 360
 ccatgacgct ttcggccaac agcaatgcta ccaatcgctt cgggtcgag cagggacgta 420
 gcctcaatta gccgccgtgc gaatacaggc cggcncagag gatatgcgtg cgcaagcagt 480
 caaacgttgc aaaatcaaag tgacggtgca agagacagct gnagaatcta ttgacagaga 540
 tacgcgcat 549

<210> 894
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 894
 attagacttg ccacatctaa ataataaaa aattagtaaa ataatttgta aatattttatt 60
 taaaaaataa aattaggatt ttttattaat atgaaataat aaataatcaa ataaatttag 120
 tgtaaataat aaaagtgtgc atgtgtcatt cttgattaat attcaacgca attaaagatc 180
 aattttgaat gtatcctctc aaaaattgtt gtatgaggag atgactagca aattttttat 240
 aaatgtcgtg gataaatgag tttcgaaaat ttattttgga ttttataaga actgttttcg 300
 aattataata gaggaagag ctagaaatcc acatatcaaa attttaaatg gacctgttat 360
 agaagaaaat gaaactcaac aaaggaacca tgaaaaaacc ngagttctct acaattgccc 420
 ctgtgtcgaa gaagacgatg atcgagtata tctaatttga atcagatcta cacaaatgag 480
 tggccatcct gccattttta tagactcaga caagcggagg gcccttggan ggcagatgaa 540
 attcccant 549

<210> 895
 <211> 92
 <212> DNA
 <213> Ctenocephalides felis

<400> 895
 taaatcatc tccttttgat aaatcaaagc tcttgattaa catttcttgt attaatcttc 60
 gcttcttgta ttcagctttc atatttgccg gt 92

<210> 896
 <211> 386

<212> DNA

<213> Ctenocephalides felis

<400> 896

```

atatatctta catcgaatct aataacaata aagagttatt aattttcatg tcgatgtttt 60
agaaaatgat tcagtagcaa cttctgaatt ttctttgtaa ttgataatac tttctcaaag 120
tataattgca tttcacaaca cacgacggaa atatggttat ggtccatatt aagcaatgct 180
cgttcttcta tccacttgct tctgataaat gttcgggtata aagaatgcaa tcaactccaca 240
tgctatcaga gatgttcctg atattaaaaa tgttaaactg caattataat ctagaattat 300
tcctacaaca ttgcttccaa caacacttcc taatcgaccc atcattaaag atatacatat 360
tgccattgcc ctgagttgtg taaggt                                     386

```

<210> 897

<211> 105

<212> DNA

<213> Ctenocephalides felis

<400> 897

```

caggcagaaa cgagaccaat tactcactcg aagagtggaa ggcattgaca ttgccaagag 60
aatataattc caaaggacaa atcgactaca gctcttgcaa tatgt                                     105

```

<210> 898

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 898

```

aagttttcgc agtttacaaa tccagaagag ataccannng caacttcaan atcagatcaa 60
tgagtgcagt tcanaattaa gaatgtctag ttcagagcta acaaagctgc tancgtcatt 120
atcaagcata ttgagcgatc aatcatatat ccaacagntt cncgatatca acgataccat 180
cactgagatg tcagaagttg aaaattggaa gtcacaaaca aatgccangt catcaangaa 240
tggcacgtca naaataantn tattaaattc tttttaaaat ttatgtatta ntaaattgtg 300
atgtctaattg cttcatatta ntattaaagt ttcaaatatt tatgttnttt tttgtactgt 360
atnaagagtt tacttanttt tcntagtttg nnatacctgg gtaatttgta cctattngang 420
aagcttaagc tcgnngaaaa ctanncctta ccnntatcag tgctangtat ttnnacnnca 480
annataacan gcttngag                                     498

```

<210> 899

<211> 359

<212> DNA

<213> Ctenocephalides felis

<400> 899

```

cgtcaagtcc aatccaagag tggaaacttt ttcaggaaag ctactagaga ggtgtcattt 60
ccaccagtgg gatcgagaaa taatcgacaa attagctgtg ttcgtgccct ggaccaatat 120

```

gtaaatggcc aaggaggcta tgccactctt gtcaatggtg gagttggctg gaaaaatgta 180
 actttactcc tatcttctca gactggcaaa ggatttaact tcttagttga aatttgggga 240
 tattagatta gaaatataat gaaaatgtga atatagaaaa aaaattaaat atacaatagt 300
 attttaaatt tggcacacat ctatctatgc atccataaat aaaggttata tacagcatt 359

<210> 900

<211> 353

<212> DNA

<213> *Ctenocephalides felis*

<400> 900

tgataaattg cctgcaagaa tgagtttcag ggaacgaaaa gaatcggcca aatgcatgca 60
 aaaggttgca ttaaataatac aactagcagc agccagagtt tcaactgatg ttggcattaa 120
 agtaggagaa gccctcagga atgtagtgga acttcgttta gatttgggaa aatgttcttc 180
 agacaatttg aataaatggg aatccagatt ggaagaaatt aatgatgttg tggaaaattg 240
 catcgtgtga aattgtaact tgaaataatt tttcttaact attagtttta tagatgaaca 300
 aatacataat ctaataaacc agcaagtga aaaaaaaaaa aaaaaaaaaa aaa 353

<210> 901

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 901

aagttttcgc agtttacaaa tccagaagag ataccagagc aacttcaaca tcagatcaat 60
 gagtgcagtt cacaattaag aatgtctagt tcagagctaa caaagctgct atcgtcatta 120
 tcaagcatat tgagcgatca atcatatata caacagcttc tcgatatcaa cgataccatc 180
 actgagatgt cagaagttga aaattgaaag tcatcaacaa ntgcatgtc atcaaagaat 240
 ggcacgtcat aaataatttt attaaattct ttttaaaatt tatgtattat taaattgtaa 300
 tgtctaattgc ttcataattag tattaagttt tcaaattttt atgttttttt ttttgtattg 360
 tattaatagt ttacttattt ttcttatttt gatataacctg gtaatttgn cttanaaaga 420
 agcttaagct cgtncnaaac tatctttata tttatcaatg cctangtatt ttaagnnca 480
 nantanaatg ctttgann 498

<210> 902

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 902

tttttttttt tttttttttt tttttttttg gacggcccaa acnattttatt tttattaaaa 60
 agntanatgt aatttcataa agcttctata ttacananant ttanataatc agaaattact 120
 atagttaatg acantttgtt tgtgcncnt acataaaata caattttata catttttaatt 180
 tttatacata ttttttaaan ntaantgcac agatcatttg ngatatttatt atattaattg 240
 actactttat ganaatttga atcctaatta gtctattcaa gattgttttc ctggtttaag 300

```

ccttacttan caatctcact tttgcattct tcgccgggtg gcgtgggtan gcanogcaac 360
tccgttttat caaagtgcaa gccanttga caatcanaag ntttatttgc canttggtg 420
ttaaccaagn nnccattgnt aacanttttt acantctctt cgatnngaaa aaaacgtttt 480
cacctttgca tgcagttc 498

```

<210> 903

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 903

```

tttttttttt tgtcattttt aatttatttc atcaactaca ttgaaattaa acaaataaag 60
aactattatt cttaaattaa agggaaattt tacatcagta cattcaacat gaatcaattc 120
taaaattatg tgaataacca aaattttaaa ccattaacac aaatattttt tattccact 180
taacttatta cttattaaaa tattacttgg caagtatttt tataattttg tattttttta 240
ggtatattat aaagacgcct ttagttggtg ccttatgaat aaaatacata ttataatac 300
attcacatat tacatactaa actattgaga agacttagac gatttaatgg aattaatatg 360
aaggaaattta ttaattttaa ttttataaat ataaaaaatt ttagtgcttt ttttangata 420
tcctangtta tattanaatt cgttttcatt tacagatgtg gcatatangt atantttttg 480
tnanttaatt ttagttatt 500

```

<210> 904

<211> 440

<212> DNA

<213> Ctenocephalides felis

<400> 904

```

antaatttta aaattaatct ttcaagttat tctgaatcgt ttgacagaaa aaaattttaa 60
aacatgtttt cttgttttac taaaaaatgt cgttattttt tcaatgaata ttgaaagtgt 120
ttccaaaaat ttctaagtta atttaattaa ttttttaatt atttttattc agatgttgtc 180
acacaaaact atttatatat catcatattt antttgtata tattttctat gataaacctg 240
taaattattt ataaaaagaa gccaaaaaaa agaatttgta gtgaaaaaat atttcaaatt 300
tgaaacacaa actgaatgtt ctgaatgtta attatatgtg attaaaataa taaacattta 360
ttgaaatatt aaaaaannnc aatacaaatt atggtagata gtagaancca anngcataan 420
aannancnca aaaaagcttg 440

```

<210> 905

<211> 494

<212> DNA

<213> Ctenocephalides felis

<400> 905

```

tttttttttt ttttnntttt ttttttgaac ggcccaaacg atttattttt antaaaaaga 60
tacatgtaat ttcataaagc ntctatattt ananatttta aataatcagn cattacnatin 120
gttnacgaca ttttgntgtg gtccttaca tngaatacaa ttttanacat ttttaatttt 180

```

```

atncatattt tttatattta attgcacaga tcatttgtgt atttantata ttaattgact 240
actttatgat aatttgaatc cnaattaatc tattcaagat tgnnttcctg gnttaagcct 300
tacttagcaa nncactttt gcattcttcg ccgggtggcg tgggtatgca tgcancncc 360
gttttatcaa antgcancnc gatttggnc aatcataatgt nttatttncc ncntgtngnn 420
nnccccagaa ncattgntca nacttttnac aancccctcn atngggaaaa acctttcact 480
tntgcatgca cttc                                     494

```

<210> 906

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 906

```

ggaagcacct taggctgtgc aggacatgta actgtatagc attttgtgcc cagagccata 60
ggtccgcaat tatgacgtaa cggatcatat gcaaaatttg cggggcaata atattgggtt 120
cctatactat tttcgtcaca ataataatag ctttgacaat catttatatt tggataaaat 180
ctcgtatggtg acggacattt gaaaccttgt actttgcana ctgtactttc tttagtgggtg 240
cactgtagat atccactttg atcagcgcac acttgatctg ggctacagga ttccttaacc 300
ggatctgctc ctatttccgg acaataactgc atttcgggtg aactgcacga attcacgcaa 360
ctaaatttta cttttttaca tttttgctcg ggtttcggtg cangtgtacg ttcangagta 420
gtactactcc tgggtcgggc tcatccaatg atgcaaatac ttctttattt actgttaaan 480
gcgttccgtc gacattaa                                     498

```

<210> 907

<211> 215

<212> DNA

<213> *Ctenocephalides felis*

<400> 907

```

agactgaccc tgggcccagg cgtttgctta acagtgcagt taaagacgac caaccacagt 60
caacgaatga tgaaataagc tcatccacaa ctgctccaag ttcaaactgt aatgaaagca 120
atggaaacct caccgaatca caacccttaa gccaaaatac ttcaacaaat actccattag 180
aaacatcaaa tacctcacta gcagaaagca gcagt                                     215

```

<210> 908

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 908

```

taccttttgc taccgatgct caagggcgat aacggaccca cagcctggcg tccaaaatgc 60
ttcctcgtcc gcaacgacat agtcgttttg caagatttat ccatgtataa ttttcgccat 120
tcgtatccaa aattctcttt ggatcttgat catgttaaag ttgctttaac ggcattggct 180
cgtatgcatg caagttgcat tatctacgag aagaaaaaaa attgttgcat ggggagagtt 240
tacaaagatc ttatgttcga gactatggcc aacaataatc aatggtggag aactggtgag 300

```

gatactgctt tagcaattgc tgaggaatct gagaaattcg gcaaataac cgaataccat 360
 tccatggtcc aggagaagtt aattgatttc ctgagattgg catggtctat ggtaaaacca 420
 tcgcgcatTT ataagaatgt ggtatgccac cgcgatacgc gcaatcacia tttgatgttc 480
 aaatataatt caactggt 498

<210> 909

<211> 245

<212> DNA

<213> Ctenocephalides felis

<400> 909

tagacatgca atataccaaa gtttctcagg actatacttg ataaattttt ttgcatggca 60
 aacataagct ggtctttcag gttcctcaga tttagtcggt ggaaagatcg tgttattgta 120
 agacaaaaac ttttgtggac cttcagatct atctgtgctg tgcaaggaac tagatgtatg 180
 aaataaactt cccctaaata atgaagttat tttgctattg attagcataa gttaagcact 240
 ctctgt 245

<210> 910

<211> 386

<212> DNA

<213> Ctenocephalides felis

<400> 910

cctacacaac tcagggcaat ggcagtatgt atatctttta tgatgggtcg attaggaagt 60
 gttgttgga gcaatgttgt aggaataatt ctagattata attgcgattt aacattttta 120
 atatcaggaa catctctgat agcatgtgga gtgattgcat tctttatacc gaacatttat 180
 cagaagcaag tggatagaag aacgagcatt gcttcatatg gaccataacc atatttccgt 240
 cgtgtgttgt gaaatgcaat tatactttga gaaagtatta tcgattacaa agaaaattca 300
 gaagttgcta ctgaatcatt ttctaaaaca tcgacatgaa aattaataac tcnttantgt 360
 tattagattc natgtaagat atatgt 386

<210> 911

<211> 66

<212> DNA

<213> Ctenocephalides felis

<400> 911

ttattgcatt tgggtccaaa atctcaggct tataatattg gcccacagaa gaatatcctg 60
 gtctgt 66

<210> 912

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 912

```

tgaaatgtga agacgacgtc aacgaatggt ttgacccaaa atctttctcg tgcagaactg 60
catgcaaaag tgaaaacggt ttttccgata gaagagattg taaaaaatat tatcaatggt 120
tcttggttaa caacaaatgg caaataaaac attatgattg tccaaatggc ttgcactttg 180
ataaaacgga gttgcgatgc ataccacgc caccggcgga agaatagcaa agtgagattg 240
ctaagtaagg cttaaacag gaaaacaatc ttgaatagac taattaggat tcaaattatc 300
ataaagtagt caattaatat aataaataca caaatgatct gtgcaattaa atataaaaaa 360
tatgtataaa aattaaaatg tataaaattg tattttatgt aaggagcaca aacaaaatgt 420
cattaactat agtaatttct gattatttaa aatatataaa tatagaagct ttatgaaact 480
aaaaaaaaann nannnnnn                                     498

```

<210> 913

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 913

```

caagttatct ctgaattcct tcacggctcc tcttgcgcat ttgccgactt cacgaacca 60
gttgcccaat tgggaccagg tttctttgaa agccttgcc aagtccttg ctccttcacg 120
ggcagcttga aggacatctt tcaagcaagc tctggcttca tcgacatcgg ctgcggtaac 180
aacgcactcc ttggcttggt ctctgagggc ttccggcttc tccctggctt ctctccaggc 240
ggccaagcca ttttggcgaa cttggttgaa ttcctcacgt ttatcatccc tgcaagcctt 300
gaccttagca cgagcttctt gtgcaaaacc tagagctttt tgggtgttggc ctttaaggca 360
ttcctttgcg gcttactca cttttttgct aagtttcctt tcaacttctt tgttgaacct 420
ttccaaatct ctatcgactt cangggcaaa tccttgtttt tcgaattcag cagcaatcat 480
ttaattttgc tatcntgg                                     498

```

<210> 914

<211> 123

<212> DNA

<213> *Ctenocephalides felis*

<400> 914

```

tcttatgatg tagtcttaaa taaatgacat tatttctatt tcataaaatg ttactaagat 60
tgctcatatt ggtagaaga tttaaaaata aatcagcagc aagataaatg aattctgtaa 120
tgc                                                         123

```

<210> 915

<211> 190

<212> DNA

<213> *Ctenocephalides felis*

<400> 915

```

aatgtcattt gttttcaaat ccgtagctat tttagctgct tcagctgatg atttgccac 60

```

accaaattgga ggtgtcggta tgccaccttc ctgcaaatg ctgaaggata tatgctccaa 120
gacattgagc ttctgtgttt ggggtgtttg ccatggtgct acggataaaa tcttaattcc 180
atcttttcgt 190

<210> 916

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 916

tttttttttt tttttttttt ttgtctgaac tataacttgc tcttttattg ctcatcatat 60
aaggctcaac agaaaatcat tattaatatt acatattttt atagtgattt cattgatata 120
accttacatc ttttttttaa ttcatttaac acctagtgcc aaataaaaaa gttatgcata 180
taagtgttaa caatttaa gcttacatat aggacattta cttgaggcca agttatattg 240
acaatattca gttgatgcac gaataaaata aaatgattta attataatca ttctattcgt 300
acaacgattt tataaatca atctgaagct acaagctaga attatataaa tacattttta 360
tactatacaa atatncagaa atatttcac ctcacgtcc tacacaaatn canctaaaa 420
tgtcttataa ggacngtc atatcacgaa aggaatnaaa attangaaag ggattaatta 480
anactacatt aataatacat 500

<210> 917

<211> 95

<212> DNA

<213> Ctenocephalides felis

<400> 917

tacgagtga cattaaacgc tcaaggtgta ttcgacgtgg cccgatatgc ttgtgcagct 60
gagttatatt tcaacacgct tctgcagcag tgcgt 95

<210> 918

<211> 68

<212> DNA

<213> Ctenocephalides felis

<400> 918

gaaaggacca ttaatttata ataattattt taatttgaat aaaattaaaa aaaaaaaaaa 60
aaaaaaaaa 68

<210> 919

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 919

```

ttttctactt tcgccgtcaa gttttataac gactgaaaat tcaataatcc aagtttaatt 60
ggttatatatt ctttttacag ttatagataa ttctataata agtattgttt gagtgctaag 120
tcagttttcta ttcttggttt tgtgtgctgt cgatgtcgat atcgatagag ccgcagacct 180
tatcaatttc acttatcggt atgtgaaact actttgattg agttagaatt tgtcactgag 240
ctttatcaag gtcttgatc atgaaaacag atcggttgcg aaataactgg catagcattc 300
tgacacaaaa atactagaat acctactcaa aacgtctttt atgaccgtgc gatgaccttt 360
gaaacgaacg ttcattagta tccgtatata cgattgattt acttttaaca cgtttaatta 420
ctacagaagt aatatcaaac gaacggctnt cgctnaagtt tatatgaagt aagaattgta 480
acaagcaaag aagtataa                                     498

```

<210> 920

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 920

```

ttttttttta attntttttt tttttttttt ttactttacn anatatgttn gtattacaca 60
acatttttagt tgcatataca agcttaaaat ataaatataat attatnaatt ttagttaaaa 120
aatctaaatg ctaggtaaag aacctantac cgaagtantt atggattcga atataatcna 180
agaaatanat cttaaaggcat ttgtatcatt cctgcnaata ttgtantga aataggnaat 240
aaatattcca caacanant aatgtattaa naaacattta cgtttgggtca nccattcata 300
acaatctana tanttcaaaa taataaattt tacaggacca aatacatnaa gcggtcattt 360
ntgtngnant gcacnaggaa acacacatat tcaattattg cgcntgttn ctataataat 420
tttgnngnnc nttntgcnac ttattaanca anatttgnga gatantattt ttcgtttcct 480
ttttganaca ttttttacag                                     500

```

<210> 921

<211> 173

<212> DNA

<213> Ctenocephalides felis

<400> 921

```

tttcttttagt ggtgcactgt agatatccac tttgatcagc gcacacttga tctgggctac 60
aggattcctt aaccggatct gtcctattt ccggacaata ctgcatttcg ggtgaactgc 120
acgaattcac gcaactaaat ttactttttt tacatttttg ctcggttttc ggt 173

```

<210> 922

<211> 217

<212> DNA

<213> Ctenocephalides felis

<400> 922

```

cccttcagta tttcttttat tttcaattac gaaaatcaga aaacagttat tccaagatca 60
tggttcttgt tcccttcttt aagttttatt cctatcctaa agtggttaact attactacct 120
aaactgcgat gatatttgtg atgaatgatg ttgacatgat gtccgaagac gttggctaag 180

```


atgcggtaaa attctgttcc tggatcatcat cgttccc

217

<210> 923

<211> 269

<212> DNA

<213> Ctenocephalides felis

<400> 923

agatctacta atgcgcggtt taccactgtc acagcaattc cgcaaaccag caaccacaaa 60
tataaatatg atgtattgt taaatgttca ataaatgcac aaattattcc acaaatcccg 120
catgagacca tcacgaatac aagaattgga agctttccca cagagttaat aatagcacct 180
attatgggaa atccaatcgc atatccagct tccaacatta aagaatgcat aaatgcctgt 240
tcttccattg tgtctttaca ctgcgtcgt 269

<210> 924

<211> 303

<212> DNA

<213> Ctenocephalides felis

<400> 924

attananata cgctgagact ttaacctant tatagacata gaanatataa ttcttanata 60
ttaaaacctt ananacttac tntataaatt gtnatttaaa aacagggtga atataaagta 120
taaataatta tagaagattg atttcntaa cagtgagtgt tatgttaaaa atatataatt 180
aatacatgaa atggacaatg tttcanttat tganacgaac ttcttgacta tgtctgcaat 240
cgatgactgt gagttatata taaaagtttt cttanatact tacgtgtata tatataagta 300
tgt 303

<210> 925

<211> 145

<212> DNA

<213> Ctenocephalides felis

<400> 925

cnttacgcct tcagtgtgcc ggaattcggc tnancgtggt cgcgcccgcg gtacgaaagg 60
accattaatt tataataatt attttaattt gaataaaatt aaaaaaaaaa aaaaaagaaa 120
aaaaaaaaa aaaaaaaaaa aaaaa 145

<210> 926

<211> 428

<212> DNA

<213> Ctenocephalides felis

<400> 926

taagttgtcc ctaaattctt tcaaggctcc ccttgcgcat tttccgactt cacggactaa 60

```

gttgcccaat tgggaccagg tttctttgag tgccttggcc aagtcttttg ctcttcgtg 120
ggcagcttgg agaaccctt tcaagcaaac tctggcttca tcgacatcgg ctgcggtcac 180
aacgcactcc ttggcttgtg ctctgagggc ttcggcggtc tccctggctt ctctccaggc 240
ggccaagcca ttttggcgaa cttggttgaa ttcacacgt ttgtcatctc tgcaagcctt 300
gaccttggca cgggcttctt gtgcgtagcc tagagctttt tgggtgttggc ctttaaggca 360
ttcctttgag gcttttttgc taagtttctt ttcaacttct ttgttgaact ctccaaatct 420
ctatcgac 428

```

<210> 927

<211> 118

<212> DNA

<213> Ctenocephalides felis

<400> 927

```

catcaccgag aagaactctt cggctacgga atatcttcat tggaggcgcg ttgttgggtgc 60
acgcagcatt aacaagggtc ttgcaattca gcataatgac cagaagaaaa atacaggt 118

```

<210> 928

<211> 489

<212> DNA

<213> Ctenocephalides felis

<400> 928

```

catttgcaag aattatcagt gtaatccaaa aacaatcctg tccgcacgca agcaaagggt 60
tgcgatgggc ctggctctgg tggcggtggt ggagggtgcag ctgtcgccaa gcactcggat 120
aaaggcgctt gcacgcattg tgggtaaagc gcgctgaagt atgtctgtcc ggcgcatgta 180
aaacgaccca cggtgaaatt tctccagag agtctcacac attcaaaata tactttgcat 240
gttttgtctg ctggatctgc aaatgagcgc ctctgcacgc agctgtatat gggcgggcggc 300
gtagggtggt gccaaaggcg tggaggattt cttaggcact ccgaaaggga agcgaccaca 360
cattgctgat agaagtaagt agaaccaagg acaattgtaa cgcgctacac tgaatcctcc 420
gcttgcttcc aaagcacatt tgtagtatcc ttgcaagtg ctgtcatagg gatctataaa 480
catcccttc 489

```

<210> 929

<211> 409

<212> DNA

<213> Ctenocephalides felis

<400> 929

```

gactcgtaat tatatattaa gtcagtttgg agaacatact aaaaacacta atgatataat 60
cgtaagtgaag aggaatttct caataaatgg tgaatttcta gctagtgcag aggttaattt 120
agggttggct atgtcacagg aaaagttttt aagtattaat aatttcattt tgatattaca 180
agaaatatta ttatctgtgt tgtttaatga tgataaagg aatcacattg tatagatttt 240
caggaactgt caaatgacag gcaaagtata atcatgatta atgataaaat tctaaaaagc 300
aaagggataa aacaccctta atgtgcactt gcttattgca ttgactatt ctgaaagaga 360

```

tgtcaatagc taatgtctta ttgtagatgc tataagaaaa ctattaagt

409

<210> 930

<211> 349

<212> DNA

<213> Ctenocephalides felis

<400> 930

taaaacgaac tctagaatat tcaaacttag ctggagggtga tacttccaac atgaaatata 60
 ttgagctaaa attaattcaa agtaaaaaag atatagaaga tccacaatta tgctgtaaag 120
 ctgaggtagt atcttgatat gtgaagttct tgaacataat tgtgttctta aaaatatgaa 180
 aattttgtgt tttatattta aagtcaactt attttctaaa aattacgata gcttataatt 240
 atgtgttatg tgaatatgat tatcaattgt taaatcaatg tattctttat atgttactat 300
 tatatatatt taaattaana aaaanaaaan naaaanaaaa aaaaaaaaaa 349

<210> 931

<211> 382

<212> DNA

<213> Ctenocephalides felis

<400> 931

taaaatcttg tggagaagaa tgtgtcattg cgatcaaaac caacacagcc cttgataaat 60
 aatgtatttt tcaacacatt caaaattaaa atactatgag aaccaattca aactgtttaa 120
 acaagtttga caaagttgtg tcgttgataa tcctagttga tgtattgtct attaaaatcc 180
 tgacacttca agcattgttt atgaatatat tgatcaagaa tacaaggttt ttaagttctc 240
 tctggaatat tttttgttct tccagagatg ttttaattgac agttgtcaat caattggggt 300
 tttcatagac atacattgta acagtatgct tgttttaata aaatcaatca aattaataaa 360
 tatccatgat tatgaattaa aa 382

<210> 932

<211> 313

<212> DNA

<213> Ctenocephalides felis

<400> 932

aattcttggc tataagttcg ttgcatgttt tgcaagtgat ttgtttattg catttattcc 60
 cgtggcatat ttacatgaa tcagagtttg cattacaatc gttaccctga tctgatttgc 120
 atcctcgagt aatgacacct ttttcaattt ttgaatagca gtcgtccttt ggattcatac 180
 aaactttggc ctctgtcttt cctgcatctt tgaacattc gtttcttagt tctggaagtt 240
 tttgaacggt acaacccgat ttctcgcaac acattttttc tcggttagtc gagtcacaac 300
 tttctttaac cgt 313

<210> 933

<211> 85

<212> DNA

<213> Ctenocephalides felis

<400> 933

```

tttgatcaat aatcttattg atcgcaagggt ttgtgctgcc tcgagtaaag tgcacactac 60
gagaaaagtt gccaaaggaa tttgt                                     85

```

<210> 934

<211> 446

<212> DNA

<213> Ctenocephalides felis

<400> 934

```

gaggagactt tgtttaccgt aatggacaac cattcgaaat tccaaaagga aatttactat 60
tgaatgatta aatgtaatag attaatcaaa ttttagatta ttaaaattgt tctattacta 120
cagtagcaac ctgagcctga aaattaaccg aacaaatttc taacccttat caatgtatag 180
attttgaaaa ataacataga aatactatct ttttgatgac tgtaataaaa aaatgtataa 240
atggccatac ctgaaaagat ttctatgtgt attttttatt accttttatt gctgaatgga 300
taaaagataa atacaatttc ataagctctt ggattaaatt aattttgaat aaatccataa 360
ttataaaata tcaaattgaa atatggaact acaaaatgta tacgaaatat aacttatata 420
ataaatgana acnaatnntg ccgncc                                     446

```

<210> 935

<211> 491

<212> DNA

<213> Ctenocephalides felis

<400> 935

```

tttttttttt tttntttttt ttttntttg tacancatat aacgttatat ttcgtatata 60
ttttgtggtt tgtggtccat attttaattt gctacttaac atattctatg attatggntt 120
tattcaaaat taatttatcc aaacagctta taaaattgta ttanctttt atccagttca 180
acaataaaat gtaacanaa aaatacacat aganatcttt tcanacatgg ccatttaaac 240
attttttcat taagggtatc aaaaatatan caggcatggn catttatata ttttttttag 300
tatgagccan canaaaaata ntanaatttc natgttanta ntcaanntct anacantnan 360
anngatgtta aaagttaatt ttcangcaga agttgctact gnactnatnn aacaattttt 420
tcatccanaa ntngntnaac ccacnncatt taatcatcac nantaaattc cgnttggnat 480
tncgantggg t                                             491

```

<210> 936

<211> 323

<212> DNA

<213> Ctenocephalides felis

<400> 936

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gcagctcgac tcacaatcag tcttganaca aatgtcggnc gacatattgc ttttacacaa 180
atcgattcac ttttacacgt ggtgacttgt tcatttgatt cgtcatctcg cgcattgatt 240
caaattctatc ccgcanactt ttggcacttt ctaattgtga gtcattattt tcagtttggg 300
cactcttcaa gaacatttat cgt 323

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<210> 937

<211> 386

<212> DNA

<213> Ctenocephalides felis

<400> 937

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aggnaatggc aaaaactgtg tctagaactt tgaaaaccaa aatttcattt tacttattaa 60
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ttgtcttgaa acaatttaga gacactgtaa tttcacctag cacctgattc tgtgattaca 180
ttataattag aatattatca cgcggattat taacacaatt tcatcgtgaa taattaatat 240
aacactagaa tacagaagac gcacgtgcat gtattttaaa atcatacacg cgacaatggg 300
gggtgggtta caccatctga atccggttca acaccggatc aggtgagcgt ctttgctaac 360
cattaaaggg tggaacaagg cggggg 386

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<210> 938

<211> 385

<212> DNA

<213> Ctenocephalides felis

<400> 938

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ttatataaca cataaagnan ancaaagtan atattttgta tagtttcttt tgtngagnac 120
ttcatcaata tantaatata atttangntt cctcncgcan gttcccggtg tgcancnttg 180
ngtatcttg ntaaataatg ttncaatcgg acattgntca ggancnggnt cccctttagg 240
gcgtaaacac gtgaaaaact tccggcatgt tncgtnggtc tnnaaancac attttccacg 300
tnctcngnna nangtttctc tccttgggga aaactcggcg ggttcttcgc attgcaatac 360
ggctccnctt ccagcaatnc atacc 385

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<210> 939

<211> 489

<212> DNA

<213> Ctenocephalides felis

<400> 939

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ttgatagaca gatcagtcgc atcaattgaa tcttgagcta ttttgctcaa ttgactattt 60
tgctcaattg gaactgactg aatagacgga attccttcaa tactttgact tccaattcca 120
tctccaagaa ttttctctaa tttttgggtg aataaggaa ttctaattga cgctgagtca 180
gaatttttat ctctgagctt tacagaacta gatcctgtat tagttttatc agtttcgggt 240
ttataacaat catcacattg agaattcacc agtcctgcag gatcaactat ttgaatattg 300

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tcattacagt gagctttatc atcgttgtct ttgaattctt catTTTTgat atcgatttca 360
 ttttttagttt cgggaaaatc tttcagcgct ccgtcacgta gtaagctaga ttcagtggaa 420
 gatattgaac tacttctaata tgatttaatg gatgagttat tgctttttga agagcttttt 480
 cgaagttca 489

<210> 940

<211> 478

<212> DNA

<213> Ctenocephalides felis

<400> 940

gttcattttg tatgaaactt tcagtaagaa gtaaggtatc cttttgtgaa tttgatggtc 60
 tttctttcac tgatccaaat attgggttctt cgcgattaat atcaacattt aattcttttt 120
 gttcattact tgtcacgggtt gttgaagtag tgattactgt attaatatct tgcaccgtgt 180
 taatatcttg caccgatgat gctatctctg gaacattgct aatatcttga ggttctgaaa 240
 cgtcttttga tcccactgtt gggtcacatt tagtaaattc caaagtaaac tgtgtgacgg 300
 gtttcattcg tataacttcg tgggttatga gacaaatctt ttgagttttg ttttcatctt 360
 taggaaaaatc gtgtgaaatt gatacgtcat aaatatcacc aacttttctt gcaacttgcg 420
 atgtgtttga agtcgttata gcnttcgagg tcttcatttc attgggatca atagaagt 478

<210> 941

<211> 139

<212> DNA

<213> Ctenocephalides felis

<400> 941

ttaaagagga tcaacaaaac atggaagacg aatcggtagt aactaatgtt cgatctccgc 60
 cgactggtat ttggcaaccg attcctaatag ttctctcaaat gccatggatg ccacaacaga 120
 tgatcagacc gactttggt 139

<210> 942

<211> 390

<212> DNA

<213> Ctenocephalides felis

<400> 942

cgattttttt gtttaatttt ttgcaaaaac aaaagtcagc cacttttcggc gtgcatcatt 60
 tataaatgat tcgacaaata accaaattcc tcgaagacgt ctccgcgagt gcgttaaagt 120
 tccaacggga attctacaag gcaaaatcga aagagttcag gatgctcctt cagcagatct 180
 cgaggagcag gcaggggacg atttttaaga aacaaccggc tctgtggtgt ctggtcggat 240
 gtctagtagg tgggttttagt ctggccactc tcagcctggc ccgcaccgtc aagaatcacc 300
 cggacgtcta cctgatccgc agccactcgg gcgaggagcg ctactggcgc cgatacacca 360
 aactaatcga cgtcagcgga tcgcgcaagt 390

<210> 943
 <211> 274
 <212> DNA
 <213> Ctenocephalides felis

<400> 943
 acatanacta atgccgcgtt taccactgtc acagcaattc cgcataacca ncaaccacaa 60
 atatanatnt gatgctattg ttaaagtgtc aananntgca canattattc cacanattctc 120
 gcatgatacc atcacganta caacgaattg gaagctttcc cacagnagtt aataanagca 180
 cctattatgg gaaatncaat cgcatatcca gcttccaaca ttaanggaat gcatagnatg 240
 cctgtttcttc cattgtgtct ttanactcgg tcgt 274

<210> 944
 <211> 598
 <212> DNA
 <213> Ctenocephalides felis

<400> 944
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 tatgatcgat cgtattttat attaagagca attacattat taattaagat attacattct 120
 cttgaattac ttcttattct ttggaacctc taaaagttct tccagtagtt catccatagc 180
 ttctatcaag ctagtacgat aattttcatt gttctccatg agatccaaaa cagtctgctt 240
 tctcattcca ttaacagtac gatcaaactc ctcagaatcg tggntcaaaa ctgccagtat 300
 ttcaggaggc atttgagtaa gaggcaatgt catcaccgcc aaaatttttag cgcacaaacg 360
 caaatcatcc gtgctancat caaactcttg ttcaggaatt atatcgttta catccaaatt 420
 ttccntcgta atgttttcca caaatgctgc tctgtagaac ctcttcaatc ctggtagngc 480
 tggctctctaa agctccanat gttgtcgata tanaagatga ttgnatccan agctggtgga 540
 ttgtttgtgca tcttggantc gncaagatgc attgtnaagt anacanttgn ataganct 598

<210> 945
 <211> 167
 <212> DNA
 <213> Ctenocephalides felis

<400> 945
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 taccatcctt accatctttc ccaaccttgc caacatcttc cccaacagca ggatttcctt 120
 ttggccgaaa atctcttgat atgcaacaaa aaactggaac taaatgt 167

<210> 946
 <211> 160
 <212> DNA
 <213> Ctenocephalides felis

<400> 946

ttatttccca atgcanatgc actgctggtg atttgactcg tatggctaca attgttgccg 60
acaaactagg tgcccaacct ggttgctcac caattacagc ttgaccttc ttgcgtccat 120
tacatgccat gtttangcaa agggctctgg aattgggggt 160

<210> 947

<211> 193

<212> DNA

<213> Ctenocephalides felis

<400> 947

cctattccgt cacctacgcc tctgtcgaag tcctacaaga ttctgagggt ggacagggtt 60
tcatcgcttc cggaggaatc ggccaatctg aaatccattt ggctgttgta gctgacaaaa 120
ttaagcaagt ccaatatacc tacgaaatct acgccattgt ctacgtttaa aatccttaaa 180
tgactgaaat tgt 193

<210> 948

<211> 413

<212> DNA

<213> Ctenocephalides felis

<400> 948

acacaattag caataggaaa atctagccac aaatatTTTT aacaatttat ttaataactta 60
tgttctagaa atacaaagtg taaagttcaa ggtttgata gcttaataaa gtaaacattt 120
taaaatgtaa tgaatttatc tgcaaatagt caaaatcaaa attactatat aatgattatt 180
gaaataatgc ttttatagat tgcatttcaa tctgtattaa attgtatgta aatcacagca 240
caagatctaa cacacaattc atctaacaga aagaacaaaa taattttaat gttattaaaa 300
attacatata aaataacttt tacaataaag taaccttaca tgagatgtgt tgatttcaga 360
tacttttcat acaacagtgc tttctgtata aacaatataa tatanataac ggt 413

<210> 949

<211> 237

<212> DNA

<213> Ctenocephalides felis

<400> 949

aaacctatta attacaacaa ttacactaaa ttaaattaca attaattcct aaactaacia 60
attcacttcc acgtgtctgt caaaaataaa atcactcaca aatctttaag caaacaccat 120
gacaagttca ctcttgatga caaagttctt atcttttatt tacaattgtc ttgcacaat 180
aatggnttat ttaatttaaa tcactttgat tgatttatgt gatgttcttc atctgggt 237

<210> 950

<211> 131

<212> DNA

<213> Ctenocephalides felis

<400> 950

attgtctttg gagtctcaag aactaattcc agttgaaaca aattccagca gcgttcgtat 60
 ttggcagcaa ccattcattt gtccaagagt tggactatit cgcgatccat tggatcctac 120
 atgcaaaagg t 131

<210> 951

<211> 204

<212> DNA

<213> *Ctenocephalides felis*

<400> 951

agaaagctga aaaattagct aaggaagcat ctaattaaat ttataaataa gtgttcaatc 60
 actgaccatt caaaatttta accttttttt acattatata accacacttt attcattata 120
 gtttatataa tttaaaacaa gtagaaaatc cacaaacagc tttgtgatca gtgattttac 180
 taaataaaaa aatatnaaan atca 204

<210> 952

<211> 598

<212> DNA

<213> *Ctenocephalides felis*

<400> 952

tatgatgtgc taaagtgtt tgtaattaaa tctaaatgaa aatgggagat tcaaaagcat 60
 aaatgaaaaa ttaccctact tcccttgcaa tttgcatcaa aactcattct ttagagattt 120
 cgtttattaa gttgtaaatt atatataatt aagagctaatt gatatttata aaaaatatta 180
 cacaaaataa ttcgtcaaac atttaaaca aaatttgaac tttccaatgt atatgtataa 240
 taaagggaac attaaaaagg accaattcaa aggaacggga tgaggctgac atggattaag 300
 tagaaaaaaa gaatataatt gcaacaaccg gagatcttca atttgggtcc aagtctcaat 360
 tcaacaaagg aatgttagtg aaattttgca atagctatgt gaagatatgt ttagctatga 420
 aataaagcat aacanactaa gaaaaagttt tcttacaaca cagtgcagca attcttattg 480
 cattagtcaa ggaaaaaaa cataaatcga agttgtccac tgaagtgggt tgaaactggn 540
 tccattcata aatatttgat ttatacttta ataatcatag tgnntagtn ngtaatac 598

<210> 953

<211> 138

<212> DNA

<213> *Ctenocephalides felis*

<400> 953

taattaattt taaaaaatta aggatagaaa ccaacctggc ttaaaccggt ttgaactcag 60
 atcatgtaag aattattggt cgaacagacc aaattttaaa acttctgcat tttaaaatta 120
 tcttaatcca acatcgag 138

<210> 954
 <211> 429
 <212> DNA
 <213> Ctenocephalides felis

<400> 954
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 tctcgatgat ggctcttggg acgttcctgt ttatggatat actgaatgtt tacgtgaaat 120
 attttacact actcgtcag catgggtaac tgccggaatc atctttgctg ttatgggtacc 180
 tcggccgcga ccacgctcga gcggccgccc gggcaggtac ggaagcacct taggctgtgc 240
 aggacatgta actgtatagc attttgtgcc cagagccata ggtccgcaat tatgacgtaa 300
 cggtacatat gcaaaatttg cggggcaata atattgggtt cctatactat tttcgtcaca 360
 ataataatag ctttgacaat catatatatt tggataaaat ctcgatgggtg acggacattt 420
 gaaaccttg 429

<210> 955
 <211> 296
 <212> DNA
 <213> Ctenocephalides felis

<400> 955
 caaantataa gataccggaa acatttanat aaacgatata tgaatattta atacatcatn 60
 aaaaagaatt tattaaatta anagaaantg gngatctacg tcaatttatc taaaatagtt 120
 tttaggtgta anaacnatta gaactaattc tatttggtta ctacttttgt tnctcgtatt 180
 taggttttgn tttaaattan gtatgttatt ttagaaagca ctgataagta taaggnattg 240
 ttganctgta ttttanaaga ctgccangca antcacgttt atttannnaa naangt 296

<210> 956
 <211> 221
 <212> DNA
 <213> Ctenocephalides felis

<400> 956
 gaacaatata gataccaaaa tcattttgaa cgagatggaa cttgcgcaag agctcacatg 60
 gaatcttttag ttgatggtaa aataaaattc agacatgtca tggaagaaaa tggaaaaaaa 120
 gttgaattta gtggacaact cagacgtaat gatgaacatt ccggtaatgg atatctgaga 180
 atcagttatg aagatacaaa tcgagaatca gattatatag t 221

<210> 957
 <211> 126
 <212> DNA
 <213> Ctenocephalides felis

<400> 957
 tggcactgct tttcatcata atacagtcac tagcgatgac atggtattct ttatcatata 60

taccctatgc tagggatgct gttaagaaaa ctgtctctag ttgtataaca tagtctgctt 120
agcagt 126

<210> 958

<211> 337

<212> DNA

<213> *Ctenocephalides felis*

<400> 958

cgaggggctt atgaagctca ctggccatct ttcgaatggt ttcagtcggt ccgcttcgat 60
tttcatgtca agattttcat cgtcgccatt gtcgggcaca tcaatgtccg cggactgtcc 120
tgtttcacgc cccgtttttg taactgtttc agactttaga ttgattatat cgtatacttc 180
gggtctcgta tcgattgttg tattgtttgg aggcatttgt aatgcgttta gagactgttt 240
tgatgcactt ttattgttaa aaacatcgaa cactgggcgt gacgcgataa ctttggtaca 300
ctttagccca ccgttaacat tgaacgacac gaacagt 337

<210> 959

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 959

acatacacca aaatatctaa agctaaatat ttggctctta caattgataa tttgtattan 60
aagcatccaa tgaagcatct tgtaaaacaac tatgcatctg tgaaatctat gttgattttg 120
aacatcagat tggggatgtc attgaaacaa aagttaaaga cagattcatt actgaaaatc 180
tgaaaaacaa actgaaggaa tttgttgacac atttatctga cctcccaaca tctttaaata 240
tgatctagta ttaagcataa gaattcaana tatacaacct ttccgttacc aatctaagt 300
agacaaaaag caattactgg caatatttaa acttaatttt gcatatggat aagtcctatt 360
gttttagccaa caaacannaa tgctgacaat ctantatgtc tgaaaaacat caaaagctgt 420
tcttttggn aacacatcana cacagtatta nncanacct tctataaagc tctannnata 480
tnnnanagtt agannact 498

<210> 960

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 960

agcatttttg gacccttttc aataagagaa aatttttgta gtagttttat gacacaactc 60
tctggtgtgc cccaatattg atgactttcc ttccattcgc aaggagatcc aatacaaaat 120
acatgccctt cttcactgcg cattaagact agagtaggac ctttatatga taaaacatga 180
tgcaaaaatc tattcattcc caaacctgtg tcccttgaat cataaagtaa tgccaatga 240
gaaggcacia cagatagtaa tttagccatg aatgcttgtg aggctaaatt aactccagaa 300
tcgctaggac tagaagcttt gactggctta gaatatagag gcggcaatgc acctgctagt 360
aaccatgcaa gcgatacagg taatagtgga ggttcaacca tttttccaaa tggatttggt 420

ttatccaaaa taggtgtgga taattccaaa cccaagccct cctcatgtgt gtcaatacct 480
ctgtatgatg tgcttaaa 498

<210> 961

<211> 414

<212> DNA

<213> *Ctenocephalides felis*

<400> 961

aaatggaata acactataat ttctgttaca ttatagttaa agtgtaaaaa aaatgagtga 60
aaatatggcg tcccatattc cttacaataa ttggntcact tacaatcagt tataacatct 120
gcatacaaaa tgtnggtatt tcaattttat acatacaana caaatttcat ttacaatttt 180
acgtagtatt tttattaact aattgataat aaaaaccctt ttaagacaca aaaatgtgtg 240
tgaaatttan ttaatacnta tgaaaatttt taaatcttta ntgttaacan tgattttttt 300
ttaaatagga acancttaan gcaacattga gaaaatcttc gacngctatt gttatgggtc 360
ctgtttgttg ggaatctcgt tgtctgaatg cttcctgtga gcctctgtat ttgn 414

<210> 962

<211> 234

<212> DNA

<213> *Ctenocephalides felis*

<400> 962

aaaagtgnnt taccatagan gtttgtgaaa gacctgngtg tcctcaacgc tttatcagac 60
aaagtcttag aactaaccct tgatgaacgt cctagcttat tcttcttccg cttancanta 120
aatttcaaat cccccgnaga aancgnnaaa nccaanactg aactcaccaa nggcatcaan 180
cancttgagc gaagccttcg ataaaaccta nanaggcaaa gtgctgttca ccgt 234

<210> 963

<211> 379

<212> DNA

<213> *Ctenocephalides felis*

<400> 963

taacctccaa tgacgtctta acacgtaaaa caaggcaagc agatgatgcc ccaaaagaac 60
ccgatttcaa cctagctaaa gaatacaacg actcctaccc ggtgggtttt aacatcatct 120
tatggtttgg agtagccttt ttcttctcgc tactagctat ctgtatctcg atctccacaa 180
tggaccccg aagggactcc attatttaca gaatgacatc cacacgtatc aagaaggaga 240
attaagtttg tgaaggagtg tttttaattg taaatagatt gtttagtatt attacaatgc 300
aacgtgatca atattattta aaaatacaat atctttgttg ttacatattt gttaacatt 360
cctcatatta ccgaattgt 379

<210> 964

<211> 462

<212> DNA

<213> Ctenocephalides felis

<400> 964

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atggtgcatg gatgcatttc gctgatcggt aaaatacgcg atacaaaaaa ttaacaacgt 60
tcgcgctctc gcgcataatt acngttcnan aattctcaaa nctttantct tctcntanta 120
naattatgtg tatttagtcn cgcgacnata nttatacggt tcgcgctata tatanaataa 180
taaagattca ttacatactc aaattactat tacnatatac attttgcant gacaaccata 240
tcnttgnnca tgnaattata ttgtnactgt anattcaata catttctctt tatttaantt 300
tgnaactann anchnaactaa ctattantac tcgcattana tccannntta tanctatncc 360
tatnntcgng ttttttactt ttgtcataca ctttnctttt nttttacttg antannatcn 420
cttaaaacgn tnanaatnan nccnacatct atnttagnaa nc 462

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<210> 965

<211> 258

<212> DNA

<213> Ctenocephalides felis

<400> 965

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gtatatacaa taatcaattg ctaagataca tcaagcatat gtcatacata ctgtccccaa 60
ttttggaggt tttctaaaac aattatgaat ataatgtatt tgttaccaa taatttgcat 120
atggcaacca tatatgaaga tctgtatatt gttcatggtt tcattccaat tctgcacgac 180
tcatattcag acaatcatcc tcgagctaatt cctctccacc gactaattta agagatttaa 240
gaagtgaagt tatgtcgt 258

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<210> 966

<211> 134

<212> DNA

<213> Ctenocephalides felis

<400> 966

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aanaccanga acaanactta ggaacacaag gttttattac ccaccacaat ttgctggac 60
aaaaccctag ccaaagtgggt ttcaactatc acaccagcaa tttccangca agggctaata 120
nacactgnaa atgt 134

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<210> 967

<211> 462

<212> DNA

<213> Ctenocephalides felis

<400> 967

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aaatatgaaa tgtttccgac antcattaaa atttctttta ttcaaataca aaatgtagca 60
nttaanaaaa taatacaaca attaactgtc agccatttta tcttctgagc aaaataacct 120
ttttaccatg tttatcnaaa tttataaaat tgacctttta acctttcccg atttattaaa 180
aatggatttg tatataaaat taaatgcgca agcaggaggc agggataaaa taattagtat 240

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atgagcagaa ctttgtggga cttcctgcag aaacatggac aacatcagga agtaattgac 300
 aagttgaaaa gtttggagtt tacattcagc tcattcagga aattgctgcg tttgggaaaa 360
 tgcatanatg ttttcnactc ttcattgcc aactatacatt acccanaccc acaatttnaa 420
 ctacattngn nattgnncac nccttntttg nnttannttt an 462

<210> 968

<211> 470

<212> DNA

<213> *Ctenocephalides felis*

<400> 968

tactttcacc aattacaang taaatctttc aggaaatcaa tcangaaatt attantttat 60
 gagtataccg agttgctcta tggacttaag atgtagaca aagttgtaaa ttatttaatt 120
 tcaaacaaat ttgccaaata tttcattcan attaaacaaa ccattcaaaa gttacaagaa 180
 ttttaaagtt agnaaacatt gcgacaacgt antgtcnaca tcaattttaa attantaatt 240
 tttcagtata ccgagttgct ctatggactt aggatgttag aaaaagttat agactattta 300
 attttgaaca aatttgccaa atatttcatt taaattaanc aaacagttta nangttacaa 360
 gaatttgaan gttagtaaac attgcgacaa cgtagggtcg acatcaagta nnnattagta 420
 anttatgagt ataccgagtt gantagggac ttttgggaanc gatntngtgt 470

<210> 969

<211> 397

<212> DNA

<213> *Ctenocephalides felis*

<400> 969

atcatgctga gctttcaatt cccaaaattg gcgcatgttt cctaaaggct gagatttttt 60
 atcttttagga attgatattc cagataggtc acgatctgca gttttaaccc aattctctag 120
 tctgtcactt gtgatgtcgt atgtagacca tgtatcacgg aacgccatta atctgcgtaa 180
 atattcacca acctcatctt gcaggtgtag caatacatcc attgcctcat tgtgtgcttg 240
 ctcaactcct ggacaatcaa ctaactcttg aagtttttca gtcatacaaaa ccaattgttg 300
 caatttagcg tgatgatgag ctatatctga actcanagat tgatataatg tgatgtattg 360
 atcataatcg actgtcgtaa ctgcagacaa atcaggt 397

<210> 970

<211> 340

<212> DNA

<213> *Ctenocephalides felis*

<400> 970

gaatactggt tcataaaatt tagaagccct aatttaccgc ctacggcgat atgatgatca 60
 gacatatgtc cgggcttgct caaaaatgta aaatgcacat gggaattttc caatggcgct 120
 cacttatgaa taatattggg aagtcctagc aattgcgtta tcaaattttc ctgcacgggt 180
 tgaaaacaat ccttangcat cttcaaatca tcccttacia ttttaccctg gttaattaat 240
 ttggtaaact cgtcaccgga tttgtogagt gtcttaactt tatcngcgat gctgggttctg 300

cacgcgtcca attttcggcg tgttttgtcc aaatcttggt

340

<210> 971

<211> 135

<212> DNA

<213> Ctenocephalides felis

<400> 971

tttttttttt tttttttttt ttgtgccttc agattttatt taaatatata acataagana 60
ataaaaacat tgatggctta tanaattcca atcttattan caatgtccaa tgcatcgtaa 120
tccctggcta aacgt 135

<210> 972

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 972

tttagctgca tcntcccaaa cgntccaaaa tactccccc antantaatc caacaagaat 60
gtgacanagt acacgcaatt gtgcaaagtn aaagtctcgt gacgtgcaca atagcgatcg 120
tttgacaat actgcnaatt gtttganaaa tgatgtcggg taaaaagatt ccgatcttgc 180
tttcataact ttctttaagc tgcaagagag aggtccggt tcgccaatt ctattcgnat 240
tgancantc aagagcngga tttttgccac gagcgattga tctgtatgtn tgttattatc 300
acatttcana ctgttgattc ctacttcggc gtgatttcta ctccatttan tttctgtnan 360
ctctaccaga ngatcgaggg tttcgcccgt tncaaaactg cnangntcta angcacaatc 420
ggctctatta caaaantgtg gnattganng gccgaatcnt ctatngttna aatcangtca 480
caagtnggcc tangtata 498

<210> 973

<211> 305

<212> DNA

<213> Ctenocephalides felis

<400> 973

tgctctgcttc tatatatattc tccacaatta ggacaatcaa taacagatcc agaccaagca 60
tatgacatta aaccagcaac ccacgaccct gcagcaagtg gccattatt ctgactagta 120
tcagctgact gataatgcgg tggtacaata acttccattc cagacatatg gcaggccttg 180
caaacataaa ctttattgcc aaattgatgc tgaaatctgc attttttact gttataatgc 240
gattctcctt gctgttcattg gcccatgctc tgtgcacatc tttcgccaca agncaagcaa 300
atggt 305

<210> 974

<211> 171

<212> DNA

<213> Ctenocephalides felis

<400> 974

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agaaaaaatg agcctgacc ataagcaaag accgaatcac ttgagtttta cctctgaacc 60
tgtaaagtgc cataacaata gtcctactca tagcccaaaa tcagcaactt tatcgaattt 120
accgagacga ccgccagtag atgtggaatt tatagatatt tcatattcag t 171
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<210> 975

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 975

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tgaggtagaa gaaatataat aaatccaata caggagatac gaatcttgct atttgccaat 60
cgatgaagca aatttcaacg ggtttaccat cctgatattt aaacatcata ttattattcc 120
aacaatctcc atgtgaaaga actctataat tttcagaacc cgttgcatg aaacaacttt 180
ccatatattc ttcacaatta tctttgattt tcttcacatt ttcataaaat tctgtgatac 240
ctccgctcgc tattgcttcc aaggcttggt tcagtcctaaa atcgcataaa tcgtaaaagg 300
cttctctacc ggtcatatca tacatggctg agtcgatttg agtaatttta tggaattttt 360
caggctgttg atctctcatg acaaaactta atgcgtgata tttagctaat ccttttgcaa 420
ctaacggttat gtgagaaaaa tccatttttt ttcttttgtc aaacattaca aaatttctgg 480
cgtgcaaatc ttccaaaa 498
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<210> 976

<211> 255

<212> DNA

<213> Ctenocephalides felis

<400> 976

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tgaagaagct aatcagcaag caaagcaaaa tgatatacaa aagaatcata ataaaaatat 60
ctataaagga ggacattata aaaattatca aagaggtggc tatagaggac gtggaggaca 120
tcattccagg cgaatgcaga atcgaacaaa tagtgatact actaacgggg atagatgaag 180
atggcttact cttttagtaa agtatatgta tcaatgtgaa gcgataaaga aatatatcaa 240
gtcattataa taagt 255
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<210> 977

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 977

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aagttttcgc agttttacaaa tccagaagag ataccagagc aacttcaaca tcagatcaat 60
gagtgcagtt cacaattaag aatgtctagt tcagagctaa caaagctgct atcgtcatta 120
tcaagcgtat tgagcgatca atcatatct caacagcttc tcgatatcaa cgataccatc 180
actgagatgt cagaagttga aaattgaaag tcatcaacaa atgccatgtc atcaaagaat 240
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ggcacgtcat aaataatttt attaaattct ttttaaaatt tatgtattat taaattgtaa 300
 tgtctaattgc ttcataattag tattaagttt tcaaattttt atgttttttt ttigtattgt 360
 attaatagtt tacttatttt tcttattttg atatacctgg taatttgtaa cttataaaga 420
 agcttaagct cgtataaaac tatctttata tttatcaatg cttatgtatt ttaaaacana 480
 aataaaatgc ttganagg 498

<210> 978

<211> 288

<212> DNA

<213> Ctenocephalides felis

<400> 978

agaaacacac acacacacac atgctatata tattacaatt ataatagatg ccccaaacc 60
 acatgcaatt gactgttatt tactaataga ttttcatact tatttattta acaaaacgct 120
 cttttccaat tcctcctcat ggtaaatgta tcagcatgac attaaacatc aatggatttt 180
 gaaatagtaa ataattaata tttcagtcac ttcataaata atcaacaggc aaactataaa 240
 tcacacaaag ggttgcgata atttaatagt tttgcttgaa tataatgt 288

<210> 979

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 979

atttattttt gcttaacaag aaactcatgg acaataaaaa ttataggtaa catccggacg 60
 atataaaaaat aatttaaaaa atgtcacttt ctaacaatgt tctagattta ctaaaatatt 120
 agttatgctt tttatgtgct ggattggcat gcaaaactct accaaataaa aataagaaat 180
 ttgaaaagaa acaattattt aaatttaata tatttaatta aattaaatta cagggcagta 240
 aatatctttc agcttatgtt cttaattcaa aaactttatt ttcttttaat tcaagatgta 300
 taatttgatg ttgcctctta caattctagt attctactaa tatttttgga ttttgagttc 360
 tctacatggg gcactactgg taacaacctg gtgatacttt aatggcaagt attaccttga 420
 taggatttcc attaaaacat tgtggcataa gagtattgtt tcactcatcc tcagttgaat 480
 tttcgacaaa taaagttt 498

<210> 980

<211> 251

<212> DNA

<213> Ctenocephalides felis

<400> 980

tttccgtaat gatgatggtg ggcgcgactt ccggaatgtt cttgccggaa actttacacc 60
 aaaagttacc ggaaacgcta actgaagctc acgtattcgg cagggatcag gtgttctgga 120
 gcttaccgaa aaaaggtgta tcaaagtcta cagatacggc cgtcaagaaa ttatcacaag 180
 aagactgtta aatagttata atttgatttg ttatacatat gtttcttata taataaaatt 240
 atatttattg t 251

<210> 981
 <211> 351
 <212> DNA
 <213> Ctenocephalides felis

<400> 981
 tttttttttt tttttttttt tttgttgata aaacacaaat ttatitttaca tgttaaaaaat 60
 tcttataaag taaatacatc atccagttac acacgtattt atatatccat ataactcgac 120
 aaagtagctt tacacaattt ggaaattgca atgtgttaaa actaattggt ttttagaact 180
 atattatatt atattttggg gaatatataa gttacggacc tacaaaatta agactatgta 240
 atgtattctt ctttagccac tgacaaattt aaataataaa tcttgcttcg ataagtaatt 300
 tgaactaata tcgatgactt cctttcggtt ttgaaaacta aaaactcttg t 351

<210> 982
 <211> 224
 <212> DNA
 <213> Ctenocephalides felis

<400> 982
 aatgattttg tttgacaaat ggtttttaaa taaacaggta ttcgaaattg atacgattga 60
 tgatgaagta gaaaaattct ggaacagcca tataataata gtccaaaatg tatttcatag 120
 taaattacaa aaataattga ttaaaattat aaatctatga ctgttcttga tatgaacctc 180
 tttcataaaa catattaaga tttgattcaa aattgaggtt taag 224

<210> 983
 <211> 498
 <212> DNA
 <213> Ctenocephalides felis

<400> 983
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 gagttatatt tcaacagcgt tctgcagcag tgcgtacctg cataccagtc agactgttta 120
 ggtgcaagtgc tcacttcttc cccatccata ccatccttac catccttacc atctttccca 180
 accttgccaa catcttcccc aacagcagga tttccttttg gccgaaaatc tcttgatag 240
 caaacaacaaa ctggaactaa atgtacaaaa ggagaagttt cttaaagacga tttaaattct 300
 acatgtacct agtgagtgtg ttatatgaaa ttgctattgc atattacata caagcttaat 360
 aaagggttatg gtgatttatt tcatttaaag gcaatgtatc ggtttaatgg ttttaaattt 420
 atttttattt aatattaaat agattaatta aaaatctata aagtgataag aggctgatat 480
 ccataatatt attgaata 498

<210> 984
 <211> 102
 <212> DNA

<213> Ctenocephalides felis

<400> 984

agaccaagta aaaatctcac tcacagcttt taccttatta ggatcattta aaaatctatc 60
tagaatgccca ggttttgccca gagattgctg cactttctta gt 102

<210> 985

<211> 204

<212> DNA

<213> Ctenocephalides felis

<400> 985

ggacggccga ctcgccgaa ttatgctcg cactgtgttcg attcaaata tcccgtacg 60
ttcgacatcc aaatgataaa cactatctaa tcaagtgatg ttgtttaatt aagcaagtgt 120
tagttcgaat tcatttttgt gttttgtgta tattataata aatggacccc gaaattcctc 180
tgaaaggtgt gactccgggt ttgt 204

<210> 986

<211> 324

<212> DNA

<213> Ctenocephalides felis

<400> 986

gcgcccggacg cgtcaaataa actaaattan atttaattta ctaacaaaca ttggtcatt 60
agtttaattgt caataatgtg catcttacat ctaataattt gaaatcatta atggtcataa 120
atcttcgaaa agttgatggc acttcagtgt tcaaatcgcc aacgacatan caagctcaag 180
atgcaatatt aaactatgtt gtaaacatan natatattat tgaaatttta taaagaggac 240
ttttataatc gctcaaagtt tgacttaata caanataaat tatttctcnt tantatattt 300
ttatatttta aagaaaatgt ntgt 324

<210> 987

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 987

gtgagtttagc acacaaatta gtctcagatt cgatcccaac ctctgtcgat cctatatcag 60
acagcacgag aaaattttca caaattttat agatctcaat ttaatttcaa gtgaaaatcg 120
ccttgatgcc gataacaagc tgcataataa aatattaagt taaaacatat tattagatat 180
aatcataata tgtcgcaact agtatagagc aactactgaa taacattcca gaaatccaga 240
aacaagccat gcaataaaat ttcaatacaa ttactgaatg tcctcataat atgaaaaaaa 300
aatanannan atantataat atataatcga agtaaattatt caattaacga aataaaatcg 360
taacanagaa ttgagagaa taatttgac tatttatatg gcgatatggc gttgtcanta 420
gtattcncgtg tatagaatga tcaatctgat aagaatgtca catattaaat tatttanttg 480
aaaatttata tgaatccc 498

<210> 988
 <211> 420
 <212> DNA
 <213> Ctenocephalides felis

<400> 988
 aatctgaatt tcatgaattt tggaaaaatt agtcatcata atttcaaaat ttgtctttga 60
 caacttttaa ggtagctaatt tctcacttcc tattaacttg ttttaggaca aaactccact 120
 tacacctagt ttgaactaca aagactacta tatatacaaa ttgaatttta tgatttttgt 180
 ataattttata aattcaaaat tcaaaatttt actctgccaa cttcaaaagt agctgaatct 240
 cacttcctat taacatgtct taggaagaca aaatttccact tacacctagt ttgatcttac 300
 aactactata cataaaggct aaatttcatg aattttggaa aaaatgactc tcatcattat 360
 ttcaaaattt tacttcgaca actttagaag caattccact tactggttg acctacaagt 420

<210> 989
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 989
 tttttttttt tttttttttt ttttctggnc catacaactc taagctttcc aacatttgta 60
 ttttattcaa ataaatataa ataaaaatca taattcgaca attttacttg tatttatctt 120
 aaacataattt acagtatttc ctcaaaaact gttaaataca ataagttaac ttaaatacat 180
 ggatgttctg agaatgtgga tgagctcaag attgtagaac tgagtttgat ctacacaatt 240
 tttgcctaaa aggttcgact actcagaaag cagccacccg tgattccata ccgcctcaca 300
 tttgacaata aaatatatgt ataattgtta ataggatttt aatggaaaaa agccaattta 360
 atacttttagc attatgaata tgtatttcca aattagtcta taaccgaatt taacctaaaa 420
 tacaggaaat acatattcat anatatacat atattttaat acaaaaagggt aacttggtgca 480
 aaaatgaaat tcaaatacac 500

<210> 990
 <211> 498
 <212> DNA
 <213> Ctenocephalides felis

<400> 990
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 tttataaaat aatcttacta ttatctatag aacaatttat aattttatat atatcaacat 120
 tattgtttat tgctagatat tagaatttgt gtatttgata aatgaatgtt ggtttggtga 180
 aatgatatat aattgcacga ttttagctca caaaagtttg cttagatatt tgaactaaat 240
 tatggacaga tcgataccta gatccataac aaaaatttat ttaaatttca aatataattt 300
 ttttttgctg catgctgaat aacatctcgc attatctttt gaaatcgttt ctttggtgct 360
 aaatctttta attctaaaca cttttgtaa gatccatttc catcgaatgc attagtcattg 420
 tcttgaaaat ctggagctgt ttcagtattc gcggaaatga aatttagagc aaaactacat 480

aaaactactc caaagtgt

498

<210> 991

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 991

tttgctcttc atagtccagg tctttataag accagtatgc aaaatcagct tgtgcaactg 60
 caaaatcaac atcctgtgaa aatactgcc gagcggttatt ttcttttgca tatgttatga 120
 tttctgagtc acattcttca aatgtggatc taataacatt acatttattt tggaagctac 180
 acattatgac ctccacgatg ttacaagctg gctttatatt atattcatta acatattcca 240
 aaccattatc atctaaagta tcgaagattt cataaatagc catgatatca gacctttttc 300
 gagctaccca tctatcctgc atatcatcta tgttgcaccc atcaaaaaat gcaactaatt 360
 ccacatcaaa cctttgcaaa aattctatga attcaccagc tttttgctta tacaatttgt 420
 attgacctcc tgtcaaaaaat ttttttgggt cagtctctct aaatatttgt ctagagcaac 480
 ttccatcgat cactatga 498

<210> 992

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 992

acactgtcag taatattgat aaaagtgggt agcaagacgg aaataatgtg cagcctactg 60
 acattgcaga tgacttaaac tgtgttgatg tggatagtgt tgacactgaa acttactcga 120
 aatgcgacaa aaacattaaa cttattgata aaccactcaa gaagcaaatt gtagttttat 180
 cagaaaatga ttttgatgac ggctgtccaa aatcgaatac taataataat aacgacccca 240
 aagaaatttc ttctcatatt tgctaccttc aagatagcga ttttaatacc agatcagatt 300
 taagtcggat catgactccg aaacatattt caacaccaga aataccaaag tctaacgcaa 360
 ataattatgc gacttttagat cagagtttcc atttaggtca aaacgttcaa aatgcgcaaa 420
 ttaacaaaaa taaatacatt tatatcgatc ctaataaaaat tgaacaagat tttaacagca 480
 atttaaataa tttaaaca 498

<210> 993

<211> 235

<212> DNA

<213> Ctenocephalides felis

<400> 993

aattgatcca taaattatga ttaaagatt aagttactta agggataaca gcgtaattat 60
 ttttaagaga acatattcgac aaaatagatt gcgacctcga tgttggatta agataatttt 120
 aaaatgcaga agtttttaaaa tttggtctgt tcgaccatta attcttacat gatctgagtt 180
 caaacgggtt taagccaggt tggtttctat ccttaatttt ttaaaattaa ttagt 235

<210> 994
 <211> 72
 <212> DNA
 <213> Ctenocephalides felis

<400> 994
 atcgatcttt ggcggtctaaa catatcttgc tgagcgaagc cggccgtata gaaatatgtg 60
 gctttaagga aa 72

<210> 995
 <211> 206
 <212> DNA
 <213> Ctenocephalides felis

<400> 995
 aacagacatt agtcaccacg cgctcgacga actttgattt tttttccgaa cgacaatcaa 60
 gtaaaactgca cataaaagag gagatgagat ttaatttttg cgtttaatgt atgtaaatac 120
 ttttaatctt aattaatttt tgtcattcgg aattaaagca gtcacttgat ggtctattgc 180
 acggaccgta gtaaaactgcg ccgctg 206

<210> 996
 <211> 260
 <212> DNA
 <213> Ctenocephalides felis

<400> 996
 aatgggtgtaa aaactgtaaa tatcccattht gttgtcacca gccattattg atgatttaat 60
 tacagttatg aaactgctga tgctatgaga attaaaattg accaaattat tgttttattt 120
 tatttaaaaga taaatacata tatttaaatg gaaattcgtg gctctatgtc cctaattggga 180
 cttctattat ccataggaac tgctacagga gtgatattca cgttagaacc agaggatagg 240
 atttcattaa aaatgggcgt 260

<210> 997
 <211> 310
 <212> DNA
 <213> Ctenocephalides felis

<400> 997
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 aacgacgacc ttttaacgaac tgcgtccaa gcgcacacg ctgaaactat gactgtcgtg 120
 gggtgatggc gaactcattg ttgaacctta caaaaactct taacttaaca ataaatactg 180
 ttcattaaaa tcaataaatt atattaaaac taaaagcgat cgaaaaaact attttttttt 240
 aatttggtaa aacaatctta aaagattggt tagaccccg aagaaacagt ggtttggtac 300
 tggtgtcaca 310

<210> 998
 <211> 59
 <212> DNA
 <213> Ctenocephalides felis

<400> 998
 tcctggatga gcgttttgaa attctgtcat ttacttatg atatcgggaa accacatgt 59

<210> 999
 <211> 498
 <212> DNA
 <213> Ctenocephalides felis

<400> 999
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 tatgctaata tagatcttat atattatatt catttttaca angatgcttc tttagaaaca 120
 gatttttttt caaacagatt ttttaattgt ctttgaacat ttttcaaatt ttcttcttta 180
 attgtaacag gtagtccaca ttctttctga tccttcatga ttgttccat aatanaaatt 240
 tttcttttta gaaagccttc ttgctctgct ttttaataagt tttcatagge tgccaatctt 300
 ttagctttca actcatcaca atatatatta gttagttttt gcaatgattc tttcctcggt 360
 atccagtga aatgatttgg tgggtgntta tatacaatat tcaanttttc naatatcnac 420
 tcanatcttt ttagtccca tctcctaang tatttcaaaa atttcttacg ttatcaatna 480
 antctttang taaagccg 498

<210> 1000
 <211> 231
 <212> DNA
 <213> Ctenocephalides felis

<400> 1000
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 catgaactaa atgtaatcct actaatataa atacaaaact tgtataaaat gttcgaatta 120
 gaattttggt aaagtgaat aaattctcta taaaactaaa aaaaatattt ttgcactgta 180
 tcatatattc cattgactca gaactcaaag actataattg ccgaatcacg t 231

<210> 1001
 <211> 247
 <212> DNA
 <213> Ctenocephalides felis

<400> 1001
 agaactactt gcatcttttt taggatgtct ttgcccacac attctgcgga acatcacttg 60
 agcaataaat attcataatt ttgcgaattc cttgatttta aacaagcgca gacataatgt 120

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atgtatatat gtatatatat atatatatat attgaatggt agagtcttgg atttgtgtat 180
atttttaga gtttcgaaca agaatccaaa aataatacaa aaaaaaaaaa aaaaaaaaaa 240
aaaaaaaa                                     247

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<210> 1002

<211> 297

<212> DNA

<213> *Ctenocephalides felis*

<400> 1002

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cacctatgta taattttata tatatatata taaagaaaat taaatctcac tcgattttaa 60
agataataaa ataaaaataaa gttacattta taataatgta agattaaatt gtaaattcta 120
atttaattat atttcaaatt aaatatgtta atgtcgaact ttaaatgcaa tttcatttat 180
attgcacgat ttattttgta ggtcttgagt aaggggagct acgataacgc gtatcgcggg 240
tgctcacgtg acggctagtt agagacggtt cctcaacacg gcccttagag gagctgt 297

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<210> 1003

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 1003

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acgcgttgat taattttgcg aggcagcagg ccaagccatt tctttttaat tagtagctaa 60
ttagacaaaa ggttttgta aaaatcctga gccgatttcg aaaattttca actttttcaa 120
aaatatctgt ttggtattgc ttccccgtag ttacttgta aaataaatta aaatagtgtg 180
acaattttgt agaaaaaata tttcagattt gtaaaaaata ttttaataaa gtattgaatg 240
gtcgtggacg atgacaaatt ttcaaacttt tatgttcaca attttaaaat ttgctgcatc 300
tcaattcttg tagattaaat acacatatct gaaagttttt gcaacttgtc ttaagccact 360
aaaatgccac ttacacctag ttaataataag ccaaaccctaa tttgtaaata agtatacaga 420
aaaacattcc aaattttata gataatacat aatctcagat tatttaagtg gtttagaatg 480
gttgccaggg agaactaa                                     498

```

<210> 1004

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 1004

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tcgttgattt agagttattg tattacatta caataaattt taatttttag ataaattgac 60
gtctttttac atatgtttgg aaaatatctg tattagaatt ttaattacat actatcacia 120
attaataagg tgtatataaa tatacagaga aactataatt tgtttaaatt ttatttcgtg 180
tcgcttcgtt tcaacaaaca agcaaatttc catgaacaat ttattggcaa catttatata 240
aatagctaaa atttattcta tttttgaata tcatgaatat ttaaaactta aattatttta 300
ttataacgat atacaattat taactttttt tatatacctt tacgtttcaa atgtttttga 360
atattttggc ataccttaaa aaaattgatg tatgtgtgtg agtggtatgc gatacaaaatt 420

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ttcgggaaca ccgatcaacc gatttaaata aatcaaaata cattcgaata gtattaggca 480
 ggtctagtcg ttccaaaa 498

<210> 1005

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1005

aaatctcgat agttacgcga ctcataaata attattttaa caatgaatgt taaaaaaaaat 60
 taaagtttgt aaatataata tatgtattgg attaacttag ttaattctcc ctcgcaattt 120
 tatactatag taaccagaaa caaaaatcag agtgtgtaaa atgtaaattc atataatttt 180
 ggtaaaaaata caatcaagat ataacagtgc cacaatatta ttaaaatacg tatttgtgac 240
 gaaacctaaa gtgtagtcag aatataaaaa acaataatat ttataccttc aaatgtatgc 300
 ttgaaaaaaa agcattcgaa gattttgttt aaatattttg ttaagtccac atttatgttt 360
 gttcgttcaa ttaattatg tttcttttgc aagtaagatt atgttgtaga tattgtcaca 420
 aaattagtat attttatgta attttaagca tattgntatt ttttgaaaaa tcggactatt 480
 gtcacaaaaa ttaataaa 498

<210> 1006

<211> 67

<212> DNA

<213> Ctenocephalides felis

<400> 1006

tattcgtagt atcaatgaag tcgtccgcc taagcattga tgaattttgg acaacgtagc 60
 atattgt 67

<210> 1007

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1007

catttgattt gatttatattc ttgagtttat ttacttcatc ataacagcaa cataaaggat 60
 attccaaaaa atatgtgcga atgaatttga tagttttcat cacctgtgga tgtccaatat 120
 cgttttttta attttttctca catagtgtag taagtccttt aagaaagtca ttcgacaacg 180
 ttttggtatt taattccaat aacagataat tctctggata gttactcgga aattgtatgc 240
 acaaaataat tgtattaaat gatgtcgtgc taatttctac acgaaccatt tctccgacac 300
 aagtaataag ctttgtatta tccaaagttt tctcacatag ttgtcgaaact gttttaagtt 360
 catcgtctaa tgcagccata cttcgttttc tctgtataat gtgttatata attatacagc 420
 aacaaatgca gctgttttaga aatttttagt gaatatgagt atgatattatt ctttagaaca 480
 tgtaagctaa ttagatta 498

<210> 1008
<211> 95
<212> DNA
<213> *Ctenocephalides felis*

<400> 1008
tacgagtgc cattaaacgc tcaaggtgta ttcgacgtgg cccgatatgc ttgtgcagct 60
gagttatatt tcaacagcgt tctgcagcag tgcgt 95

<210> 1009
<211> 406
<212> DNA
<213> *Ctenocephalides felis*

<400> 1009
gtttgctata ttagttcggc ggtaagaaat atttttttaa tagcttgatg aaaacaagaa 60
aatatttaac cgagtgattt taaatataaa aatatatata tagaattata tgacaacaaa 120
aaatgagtaa tgtagacgtc gtcgtgtttt cgtttcttgt cattttattt aacatttctt 180
acgcttatta catattgttg tatatacata catatatata aattaataga agttttatcg 240
aaacgatatt gatgaaatgt gtcttgtaag gtttttttta attacgaaaa aaacaaaaaa 300
tgtgtgaaac tgtgattcct gcctttctcg tgtaaaacgg cgatgctaga aaatagaaac 360
attaagcgtt ctttccattt aattaaaaat aattactaaa aagctg 406

<210> 1010
<211> 84
<212> DNA
<213> *Ctenocephalides felis*

<400> 1010
taattaattt taaaaaatta aggatagaaa ccaacctggc ttaaaccggt ttgaactcag 60
atcatgtaag aattaatggt cgaa 84

<210> 1011
<211> 228
<212> DNA
<213> *Ctenocephalides felis*

<400> 1011
ctcgtaaate acttggtcac cagtttgatt tgtggtagtc tcattttcta taggnataaa 60
catcagntgg ttcatgaaa gggttggttg ggtgcttgtc ggcttcgtcg aagggattgg 120
tgcttggttc gggttctggt tcgtcgaaag gatttgctgg aacgtcttgc ttggcgtaac 180
tggtgtcccc gtagacttgt ttcgaagatt caccaattgt tttgacgt 228

<210> 1012

<211> 245

<212> DNA

<213> Ctenocephalides felis

<400> 1012

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gggtggatca ttccaacctg gtggtggtgt agggtttgct ctacttggca tttgagtagg 60
aggtggtgct tgcggttgga attgattgac aaaacctgct ccttgtggtg aattcaacat 120
agggttaagt agggcatttg ttggttgagg ttgagaacta ataggattca gaagacttgc 180
tggttggttg aattgaccag acattgtgct catcgtaact gtattggcat ttacaggcga 240
attgt                                           245

```

<210> 1013

<211> 351

<212> DNA

<213> Ctenocephalides felis

<400> 1013

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atggaataaa taatgttggc ccatatatat ccaatttatt attaaaataa attcatgac 60
cacggcagac cttaaattta atttgaggtc atttaaaaca tttaaaattt attcgattaa 120
caacaatttt tagtagtagg ttagtttaat tatgaatcac aatatagaat tagcacatgt 180
atttttgtga gtatgaactc acaccaataa acctgaattt taataatggt taaggatata 240
actaggttta tgattacatt gctacagcaa tcatttgcgg gcagtttgga attgtgcatg 300
gttcagcact cttgtatttg ttgcctcttg ttctagcttc ataatgatcg t      351

```

<210> 1014

<211> 496

<212> DNA

<213> Ctenocephalides felis

<400> 1014

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agcactgcc aaaaacctgt gctcatatc aacagccccg caagtagata caggctcttt 60
taacaagtct caagttataa ttcattgttg ttattgcaat aaactttacc ttgatctct 120
ttccaattat ctataaaaat tcattccaaa attactgcaa ttatttagag tcacagatta 180
ataatcttaa aagggttcga gttagtgtgt tacattaaga ttttctcatg cttgacagaa 240
tcttagtttt tctttggttg ttttataaatt tagaaaaaag gtgaagggtg gatttgagag 300
attgtaaagt cttggcacta ttctatgaga tgtataaaat atatttttaa tattttaatg 360
atztatattt aaataaagtg ttacatttaa taataatgta tataattgca atacgtttga 420
ttacattttt tagttttcca tatgtaactt tatatttgaa tatttaatac attgcaatta 480
aaaaaaaaaa aaaaaa                                           496

```

<210> 1015

<211> 194

<212> DNA

<213> Ctenocephalides felis

<400> 1015

atcctttttt tctatgaacg gtttttaggta acggagaata atgtaaggca tcactaaagt 60
 cgtttttatt tgtgatttca tgattaggct cgggtcttct gacccgcata aattgacccc 120
 gcaattttgc ttcctttgcc tcgtttgatg atacagcccg ccaatccaaa aataataatt 180
 ttggtaaatg atgt 194

<210> 1016

<211> 401

<212> DNA

<213> *Ctenocephalides felis*

<400> 1016

tatcatcaac agcaacactg tgaacctttt ttcttctcac gacaccgttt atcgcggcac 60
 cattggtcat atccctatca atagatgtcg aatctaattg caggtagta ggtctgggag 120
 gagcagacat agacctttcc aaaagttctt ctgtcgggtc aacgttcatt ttcattaaat 180
 ccctcatccg tggagggtttt actggaggcg tgctattacc ttctgaaggc attgtctcat 240
 aaatggcttc cgatgatgca cttgatgccca ctgtttttga caataattca ttgtcattaa 300
 tgactgcagg ttccttttgg gcagctatat atgactcagg gcgtattcga tgtgatcgcc 360
 tcgattctgt cgtcgtctga gattcagctg aatgggaacg t 401

<210> 1017

<211> 422

<212> DNA

<213> *Ctenocephalides felis*

<400> 1017

tactgatttc aaaaacaaaa tcnaanagaa atatactatg aagttcaact gtaatgggac 60
 ttagncaaaa taaatgcgag ggagtgagag aaagagaaag agaaagagag agtttgaata 120
 aattatatta actattgcna gaaaaaaaga ntttaaaaca attatgttaa ctaatgacaa 180
 tatatgntcc attcatcana tccgaaagac tgcacaanat acttattctg naaagatggc 240
 aaaggttnagg ttttcgaatg cccacctaac tatgtatatg atcattctaa aaatatgtgt 300
 aaaaagaaat cagtcagaag ntgattgcac cgtnatgaaa tgcacaaatc ccaattcttt 360
 ataacctatg caccggancc atcaatntat gctttgggca atgacaaatt gcaaccgatc 420
 gt 422

<210> 1018

<211> 233

<212> DNA

<213> *Ctenocephalides felis*

<400> 1018

taattaattt taaaaaatta aggatagaaa ccaacctggc ttaaaccggt ttgaactcag 60
 atcatgtaag aattaatggc cgaacagacc aaattttaaa acttctgcat tttaaaatta 120
 tcttaatcca acatcgaggt cgcaatctat tttgtcgata tgttctctta aaaataatta 180
 cgctgttatc ccttaagtaa cttaatcttt taatcataat ttatggatca att 233

<210> 1019
 <211> 459
 <212> DNA
 <213> Ctenocephalides felis

<400> 1019
 cctaaaaagc ggatttggat aaaatttgct ggttgtatgg gagctgccta ttcacccctcg 60
 aggaaaaata gaattagctt ggattctcac acgtgagcaa aacccatcgt cggaattaat 120
 gaaagaaatt tggacatatg tgaaaaataa tacaccata gatgttgaca aactaaaaca 180
 caccgagcaa aattgtggaa aggatttctg aagataatta ctggatataa agncctttta 240
 agatcagctt tatcaaaaca actgatgttt aagaataact aaatatatta tacttaatac 300
 ttagcttttc ctggcaatac tatattaaaa tattgacata agtgcattaa tatttttgca 360
 atagatttgc tttttatatt caatatataa tatgnattaa taataaaatc ttctaacatc 420
 aagtgtataa atgcattaat tttctcaaaa aggcttatg 459

<210> 1020
 <211> 477
 <212> DNA
 <213> Ctenocephalides felis

<400> 1020
 cttgaatttg ataagtgaag caattagaat aaagtccgaa cttttgctta gatttagaga 60
 tgcattgatg agaccagcct tgtctaaagc aaagctttcc ttggaacgac ttgaaaaggc 120
 tgtttcaatg gctattgatg atgctagact taaatttgaa aatgccatcc aagaaatgaa 180
 tgacgacgca gtaggcattc ttaattccat cactgaaaaa atccaagagg aaaccgagga 240
 gatcaaaaca aatattggag gattactatt acaacaaatg ttcgatgatt ctgcccgta 300
 atgcttgagg gatcaattgg ctgcagttaa agttttggcc aattcaacaa tcaacgatgc 360
 aaattcatgt attcgtcgtc aattatttgg agctaagat ttaagtata atcttggtgc 420
 aatatttgat gaagctttcg aaggtgttca agaattagtt gatgagctaa atgattg 477

<210> 1021
 <211> 433
 <212> DNA
 <213> Ctenocephalides felis

<400> 1021
 ccatgttggg aagatttatt attttatatc ccttncaaaa atctgcacgt tgttcacaaa 60
 aaaaaatcat aaaatcttaa atttatttgc aaaaaaaaaa atagtgcggg aggagtga 120
 cttcgtaa ataaaactgcaa aagttacatt gataatttac aataaattca gacagtgtgc 180
 aacgtttcta gaaaagttca gaagtttga aacaaatttc atcattttca accaaatgct 240
 ttcttttcta ttaccttta aagnttact tcaatatctc cctataatat ttgntacaa 300
 gagtgttgn ttaagattta tagcatatta caaactgnta gttatattat tttctactta 360
 tcggtaatgn ttctttttt tggtaatcag ttacaaaac tttctgcaa aagttgtgcc 420
 atcaacaatt tgn 433

<210> 1022
 <211> 319
 <212> DNA
 <213> Ctenocephalides felis

<400> 1022
 atttatttgt tgaatatttt atatcaattt atttttgata attattttga taagctcaat 60
 ttgttctttg tgacaataat ttaggcataat aaaagaaaac cagtaaaaca atacaataaa 120
 atcaccaaca attagtttgt ttttcttctg tgttattaat catcagaaca taaataaatt 180
 ctataagtta ttttgatata cattattgac tattagatac aatttattga atcaagttaa 240
 ttggtcgtaa ttttttacta tttttatatt tgtaaataat aaattaagat cttgctttta 300
 gaagtcttca atgtatagt 319

<210> 1023
 <211> 518
 <212> DNA
 <213> Ctenocephalides felis

<400> 1023
 aatttttgta atactttgaa atatattctt aaattaaatt cttaacata tacataccac 60
 tttattaatg gagttttatt tggcatgcta attcttccat taccttggtg attcattatg 120
 tgtagattg gcgcctgtat ttattaggac gaagaaaatt gaacatgcca ttccttctat 180
 tattttttat ggcattttgt gtggtattgt cactaccatt tgggtgatct gaagtttctc 240
 ttgtgtcaga caaatgcaac aaagtcgcac gacctccatc taaacgacta ggcccccaac 300
 ctgaagtgta tgcatattca ccagtatgcc ttgcgagact gtcattagca tgtgatccat 360
 ttgtgaaag gctgttttgt tgagacctat gccctgcac catttcatca tgagaaattg 420
 tattccgatg ataatcaggg tttgttgatg ttctaattgg cacaggtgga ggcggtggtc 480
 taacgctgac agtgacagta tttgaatact ggggtggt 518

<210> 1024
 <211> 112
 <212> DNA
 <213> Ctenocephalides felis

<400> 1024
 ctggtttgca agtcattcca ctggacatg tttccaatgt tgtttctaag aaatcagngc 60
 caatcgcaat gcaaaggttt gctgtctcac aatcctggca ctttatttct cc 112

<210> 1025
 <211> 304
 <212> DNA
 <213> Ctenocephalides felis

<400> 1025

atatctagcc aatattgcaa aattcttattc agtgcattgtg aaagaaaaac tattattntc 60
 gaaaatatat caatattatt ataagtaaag aaattgtcat tccgaatgaa cttctgaggt 120
 ctaaagaccc attacacaag tcagtgtcgc acatgggtgca atttagatcc cgggctcctt 180
 ttttggttaa atctttcttt atttcttcac atgtgactcg ggcagggaca cattctctaa 240
 tcacaccttt ttcaatcatg gatttataga aaactctttc tccgatgtct gttgtacact 300
 agcg 304

<210> 1026

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 1026

ccggtatgaa aaggaaagtg cttttacgtc caaacctgtg agtttccaat atgccacatg 60
 tcattattcg ttactattc ttatccttaa tatttatagc actgtcgtaa taattctttg 120
 taaaatgagc catatctctg ttgagagtca taccgtaatc atatcgacat tgatatgatt 180
 ctccacataa atcttcagca cgattgatgt cgctacttct gtttgatgga agaaaatctt 240
 taggttcttt aaccaggttt ggtataaatg aggaatttgc ataataactg gctgtncgac 300
 caaattcacg agtgaagagt gccgctccga ggtgttcatt ttcacgatcc gcagcatcca 360
 gtgacgtgag anacttttat gaacagattc aaaactattg agattaacag gcacaaaagt 420
 tccatcangg tngacaanag cgantgccat atcccaactc caatttccga gtagaccagc 480
 agtttattaa taaatgcc 498

<210> 1027

<211> 305

<212> DNA

<213> *Ctenocephalides felis*

<400> 1027

ggaatattaa tgcattatcg tttcgggtgt aatatattct tatatatgta ttaaatttgc 60
 cccgttttct taatctgaca ataagagata ataatgtcaa caaaaacatg cgattttaat 120
 cttgacataa aaagtgtcaa ggtaatgtaa ataaaccgta ggcagctgat tataagacaa 180
 cttttatata attactaaac aatttttatg gcataaatta atttaattaa ttaaaaaata 240
 taattaataa aattgatacc attctaatac atataaaatt atcattttat ttattcaaat 300
 cnaag 305

<210> 1028

<211> 127

<212> DNA

<213> *Ctenocephalides felis*

<400> 1028

aaaggcactt tttgtcttca agcacacacg aggcctttaa ctaccaatgt aatatttgac 60
 tagaataatt ttaattgttt cagcgtccac tgaaggcttt aagcaacttc gtgccaaca 120

gactctc

127

<210> 1029

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1029

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aaaattccaa atttttagttt ataaatcatc ttatatggaa actgtctgca acaaaccaga 60
ttttaaaata gaatccaata aatacggata taaaatttta ttaaaataca caaacataac 120
aaatgtcgtt aattactaat tcaaagtttc atacgatatg tcatatgcta atttttagatt 180
tattatcata aataaatttta ttatttaaat catattagag gaaaaaaaaa ttttttctca 240
attctctcct tcaaaacttc ttgcaacttc tccggctcca tacagtttta ataccacttt 300
tttcacaaaa ttcaacattt ttgtaaaatc cattgtgaaa attcatttgg ctgtttatta 360
aaagacatca tcccttcgga atctgttata taccctaaac cagcactctt caaatacaca 420
aaatcctttt tcaagttaac ctggaacgtt acccatattt ggaagttcct tttggattca 480
acattgaatt tgtttttcg

```

<210> 1030

<211> 454

<212> DNA

<213> Ctenocephalides felis

<400> 1030

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acaagtanta attgtttata caatatgata catagttgaa aatagcatga aatatcatta 60
taattttgaa aggataaatt ctgttgacat ttttcttttt ttttaatat tttcatatat 120
atttgatttt tgctgaacat tataaaattc atgaattata gggaaataga atttgtaaatt 180
ttaaccaaac ttaccaataa gtcaacatta tatgataagg aaatagtaaa tatgacttct 240
taaaatatca gttattaaaa ttggagcaa tatgcattat caataaattt actggaattt 300
ttatgcctga aatcaaaatg ccagaatagg ctgtgaatgn tttaaatact ttttgatagt 360
tgatgatgga atagctgatt tgtgaatgat tctactgatg natatttact aatactaata 420
taaaacacga ananannngn anaaaaaag cttg

```

<210> 1031

<211> 154

<212> DNA

<213> Ctenocephalides felis

<400> 1031

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tgatagatgt attgcaataa gttatttttt tatgaaagat aatgttcaac actaattgaa 60
atagattata agattttcac tacattttca tccatttttt tctacatcat gaaattctgt 120
attgtatgta attcattatt ttttaagttaa atgt

```

<210> 1032

<211> 285

<212> DNA

<213> Ctenocephalides felis

<400> 1032

```

atattttatat tattatgata tatattgtta aattataaca atatgattat ttacatacat 60
atatttattat ttatcttcta ggaactcttt atccatatta ttgaattttt ctactaaatc 120
tgaaggtatt tctagagatt ttaggtcatc tgtcccaatt tcttcctcag ttcttattag 180
aatgtcgaca acattctcac aagcaagcaa actggccttg tcaccaagtt ttaatgaaac 240
ttgttttgtt tcccatttgt ggtattctct taatatttca taagt 285

```

<210> 1033

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1033

```

atcgaaaaca aattcaatgt tgaatccaaa aggaacttcc aaatatgggt aacgttcgag 60
gttaacttga aaaaggattt tgtgtatttg aagagtgtctg gtttggggta tataacagat 120
tccgaaggga tgatgtcttt taataaacag ccaaatgaat tttcacaatg gattttacaa 180
aaatgttgaa ttttgtgaaa aaagtgggtat taaaactgta tggagccgga gaagtgcaaa 240
gaagttttga aggagagaat tgagaaaata ttttttttct ctctaatatg atttaaataa 300
taaatattat tatgataata aatctaaaat tagcatatga catatcgtat gaaactttga 360
attagtaatt aacgacattt gttatgtttg tgtattttta taaaatttta tatccgtatt 420
tattggattc tattttaaaa tctggtttgt tgcagacagt ttccatataa gatgatttat 480
aaactaaaat ttggaatt 498

```

<210> 1034

<211> 88

<212> DNA

<213> Ctenocephalides felis

<400> 1034

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acaggatata agtgttctgt ctgcccataa taaaaaacga cataaacgta gtaaatacga 60
taagtaatat gggcatcatn tatcagcg 88

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<210> 1035

<211> 394

<212> DNA

<213> Ctenocephalides felis

<400> 1035

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ttagcccaag ttccacagca ggtttggcag tcactataat agtatgctcc ctttcatttt 60
cccctgaacc aactttgnat gtgtaagagc cagcatcatc ttgttcagtt ttttcaataa 120
tgaattgatg ttcttccttt attaattgat aacggtcctt gagatcattg atttcttcta 180

```

cttttttctc atctttaaac cactgatcaa caggaccatc tttcaatgga caggtttagaa 240
 ccaatggact gcgaatatca aaaagttttt gcgacgtggc ttcaccttct cgggcataaa 300
 cactgctttg ggccaataat aataaaattg cactacacaa aaactgcttc atattttattg 360
 aattttcttc ccctcgattg aaaaagttca taag 394

<210> 1036

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1036

taggaaaaat tatacttgat aacacttcaa attcactcaa aaatataaaa gatttttattt 60
 aacgatgtta ctctggtgaa cgaggctttt tttgaaataa tatacatata ctaagtatcg 120
 agaactgttg cataaaactc aaaataatta ctgaagcatt aaaaaatttt gtcgccttca 180
 aaatagacct tattcgaggt aatgaaaaca tgccaacaat taatccaatc ttcaaagcat 240
 ctttttaacg cctttataag gatattcttc agctcctttg gcgttttttt cttacaaaca 300
 ttgttagtgg aatctatcga tccaagagg tatctaaca tagtattact tagnaattcta 360
 tacttaagta tccatgacaa taaataattt acagagggat agatctagtg aatacgttgg 420
 ttgccatga tatttcatga gtttatggcc nnaaaagcgt tcacaatata ggcgtttgtg 480
 gaagagagtc aacaatga 498

<210> 1037

<211> 415

<212> DNA

<213> Ctenocephalides felis

<400> 1037

ccacatgaaa ttttaaatgg aaagtatgaa atcagtcgca ttcaagtatt taacaacatg 60
 ctatgatagn nttattaaaa caaccaaatt taccatgtag caagtcttcg caaatcatca 120
 catttttttt caacaatgga ttttcagtga cacttagaac aagtggaaca gaaccaaagt 180
 taaaatatta tagtgaaatg tgtgcaaac cagagatgaa ggatctagtc aactgaagc 240
 aaactgttaa agaaatgata gaagctgttt gtcaagaatt tcttcaacct gaggagaata 300
 gattaatatc aagagaaaaa tagatcttaa ttaaatagac tttaaataat tagcacaatt 360
 tatttttagc tgaagagatt tcagttttca cttagctgaa ataaaacaac tattg 415

<210> 1038

<211> 109

<212> DNA

<213> Ctenocephalides felis

<400> 1038

aagctggctt gccaccgttt ggtctccac catttgaagc aaatggttga aatagaacag 60
 taacattcgt tgaaatgtgc agcgacctag gatctgccat catagttgt 109

<210> 1039
 <211> 440
 <212> DNA
 <213> Ctenocephalides felis

<400> 1039
 gggnaagtag cgtgtgttgc ncttctgaaa tnannggaa accctcggaa cttntngggg 60
 nantngcna ggacatncta tgcaaaataa attagtaaaa caatataatt naantatttg 120
 caatctttgc tgtgtataaa actangggnt tatnggntga aactgattta aattcatttt 180
 tgaactttgt tcttatatgt tgnctgcat tagctaggaa tgttcctaca tatactttaa 240
 cattcaccta aatatatata tatgtaatct tatatgtata taaagttttt gatctgtgtt 300
 ggcgaggtaa tattggcttg ataaacagt tttttaacat gatgaatgtt caattgttaa 360
 atcttgtgaa aatgtaaatt tgcaatttca gctgtgaatg ttttctggct gcctagcatg 420
 tgtattgcat catatggngt 440

<210> 1040
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 1040
 tttttttttt tttttttttt ttttttttat aaacaatttt tatttgtcaa aaagctacat 60
 aagctagaac cattngacca caaataatat atcactagac attttttagga agtttacagt 120
 ttgttataca attcttaaac taatttagtt atcagtaagt ttaagcagt cggcacagtc 180
 tttacggact tgtactaagt tgnccctaaa ttctttcaag gctccccttg cgcatTTTcc 240
 gacttcacgg actaagttgc ccaattggga ccaggtttct ttgagtgcct tggccaagtc 300
 ttttgcctct tcgtgggcag cttggagaac ccctttcaag caaactctgg cttcatcgac 360
 atcggtcgc gcacaacgca ctcttggct tngctctga gggcttcggc gtctccctgg 420
 cttntnttca gcggccaacc attttggcga acttgggtga attcatcacg tttggcatct 480
 ntgnaacctt gaccttacac 500

<210> 1041
 <211> 498
 <212> DNA
 <213> Ctenocephalides felis

<400> 1041
 attagatatg gtctgaccat gattgatata ttttgatata ttttaggctt ataatatann 60
 aaaatacagt caatttaaca tttgatatta catatatata atcaacaata tctaaacatt 120
 gaaattagag aaactgaacc tgaagatagt gatttaagta taaattctaa gctagtaaag 180
 aagatccgaa aaaatctgat aatggtaatt ttaccgctcc aactaaatat ccaaaattcc 240
 agcagaattt gtaatgtaa tattgattct gataaactga aatcaccagt aaaaaaatc 300
 caagaagttc taataatggt aattttacca ctaagggaata taaatgctgc tgcaagagaa 360
 gatttgacta atttcaaaca gaatacccca tcgaaataag cgatcagcaa ttgaagaaga 420
 taattgtgct aattggtgat ggtcttaatt ttatgatcgt ttatatatgg taataataag 480
 tcttataagc ttttgatt 498

<210> 1042
 <211> 498
 <212> DNA
 <213> Ctenocephalides felis

<400> 1042
 gattgctttg aaaaaagttc agaatttcca aaatatgtca aaataaaaaa acattttttt 60
 ttcaaaagng gtattttctt gtcaaaatag tttctcaaaa atgttaatcg tttttttaaa 120
 aaataataat ttttattacg ggaagttcca gcaatttgcc ttaagacacg atgccatgcg 180
 cccactagtt ataaaattga ttttagataa tgactttcaa tacgtcgcag gaacatttag 240
 atgcggaatg cgttgcagtg gttaaatacat ccatataatt tgtattagct acctaattga 300
 cttatacccc aaatacctcc acattttcag ttatttttaa ctttctgtag ggtaaattat 360
 agtaattgtc caaaaatcga aaataaaaaat gggtgcataat cttcacgctt tggcatacct 420
 tagaagaat ggatttatgt gtgtgtatgt agtatgtatg tatgtataga gacaattttt 480
 ccccgacggt ttcgggag 498

<210> 1043
 <211> 498
 <212> DNA
 <213> Ctenocephalides felis

<400> 1043
 aacattggtg taaataatat gttctcgatc caatatataa tactgtagta aataatatgt 60
 gtcgaattt aaagaaatgt ccgggctcgt gtaaactaca tatatgatga ataataatat 120
 catcaaatac tattgggtat aaacaatatg cattgaatgg tccagagtat aaataataac 180
 tactttacgc ccccggttg gtcgaacca ctaacctttc ggtaacagc cgaaagtgt 240
 agccaattgc gccacggggg ctcttatcgc ttcttgataa tagtaacaca tctcaataaa 300
 cacattttac acatgatttg ccatttttagt aaataatagg cactcgattt tatagaaatg 360
 tcagggctcg tcccggttga tgaacccgaa acctccgcac ccaaagcggg aatcataccc 420
 ctagaccaac gaaacacatg ttctatccag tgcgtgttg ggtgcatcca atgtcaacat 480
 ttagtaata atatggcc 498

<210> 1044
 <211> 437
 <212> DNA
 <213> Ctenocephalides felis

<400> 1044
 gattttcaat acaaagtggg agatccgcc attcaacttt catttggtgc caatgaagca 60
 ggagatgcat caggaaaggt gaccggcagc tactacgttt tactccccga tggaagagtg 120
 atgactgtcg actacgttgt agatggcgaa agcggttttc aaccgaaaat ttctttcaac 180
 aaatagatca agctgacaaa ggaatcgaat cagctaaact tcattaacaa catcatttca 240
 tagctaaaaa tttaaacaaac gaaacatata tactcatgaa ttactgccta tattattgtt 300
 tatactgcct aataaacaat ttgtgattaa tactaattaa ttactactg ctaaacagaa 360

gaaatatatg acgaagctgt gaaacgcaat aaagttttgt aaatatattg cagattcatt 420
 taaactaaca attatgt 437

<210> 1045

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1045

taattaattt taaaaaatta aggatagaaa ccaacctggc ttaaaccggt ttgaactcag 60
 gatcatgtac gcaattaatg gtcgaacaga ccaaanttta aaacttctgc attttaaaat 120
 tatcttaatc caacatngag gtcgcaatct attntgncga tatgttctnt taaaaatant 180
 tacgctgtta tcccttaagn aacttaatct tttaatcata atttatggat caantattca 240
 attattttatg tttaataaaa aaaaangttt tataaattnt cctatcacc caataaaatg 300
 tattaatata aataaantnt aataatattc ttaaaattaa tctatattna tatataaaac 360
 ttataaaggg tcttctcgcc tttaataata tttagcgtnt ttaacataaa aattanattc 420
 tataacaatt ntattaagac agttaatatt tcattcaatc attcattcca gctntcantt 480
 aaaaaactat tgatatgc 498

<210> 1046

<211> 582

<212> DNA

<213> Ctenocephalides felis

<400> 1046

cctacacaac tcganatact cataaattat taanttctaa tcgattncct gaaaaagggc 60
 gttgggattg gtgaaagtgc atttattcgt tacatttctg ataacttaaa aactatttgc 120
 ggaaaaactaa aaatatgttt ggagaaaata tagaaaattg aatagtctaa aacattttcc 180
 taacatagga agaccctaca gcaactcggn atactcaaaa aagtttggtg aaaagttgat 240
 aaatattcac agcgcttcac tgnnttggtc ttgagtttag gaaaagtgc tttatttata 300
 acttttgaac gggttatttg attggaatga aatattcggc aaatttatag aaaattaaat 360
 aatctacaaa nttttctttt accgcaacag aaaccaacga aatattccct tcggctaata 420
 cgggtaaaca tcacaaaatg natcgaatca atattttttt aaaattgaaa attgcaaatg 480
 ataaatggaa ttggatttat atttttttct aaaaangaat ggggaactat tccaaggaat 540
 gggagaatgn aagaaaaata atattattcg atgngaaaat gg 582

<210> 1047

<211> 472

<212> DNA

<213> Ctenocephalides felis

<400> 1047

cccggnnttg gtgatcaaca ccaaagacac gctcagaatt ggcgttccat taggtaattc 60
 cagggttcacg agagtcaaat catcaaagg gtagcggttct ttaaagcggt tatccaaaga 120
 gtoccaaagta ttatccaatt cctcatccac aaccaaggga tatgtattct tcgaatccaa 180

```

actaagttta tcagtgcctt ctacaactac agtgactaca gctttaggta attgaaaagg 240
attcaatttta ctcaactcgt cccattcagc agaactctgc tccgatgtca atcctaaggc 300
tacggaatac aattccttta acaaagattg gggtaaagga gtctcgcctt ggaattggac 360
tccatttgga gaatttaata cactcagttc gccgttgcaa tatatggatg ccacaagggg 420
cagtaaataa attagaacct tttgcacatt ttattactta cggataaaac gt 472

```

<210> 1048

<211> 221

<212> DNA

<213> Ctenocephalides felis

<400> 1048

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aagcagaaga tgagattaat ctgcggaggt tgttgacaaa ttaccagaag atctggncgg 60
aaaaattgaac atttcagcac ttccttcgac agaggaagca gaaaaactgg ccagagaaaa 120
atgcagaaaag gaaagtggaa gcgacgatgc ttacgataaa gcttttgccg ccaaagatga 180
gctgaagact tgtttcacgt ctttgctgaa tatggaggaa c 221

```

<210> 1049

<211> 427

<212> DNA

<213> Ctenocephalides felis

<400> 1049

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ccaataatta catttaattg aaagtgtcat taaaatattg accatgcatt atacaaatta 60
tatttataat tatngcgtta acaaaataaa ataattttgt gctaaagcct ctgcaataaa 120
aagaactgac tcatatgtat aaagatttaa ttgtataaat gcaatacaaa ttaattacag 180
ttaaaattta agaacatatt gcatgacagt ttgttataaa gcataaatga ctgcttagtt 240
ttttttttta atgaaagttt aagacatcta ttataggaag atatatggcg gaaacagaat 300
cattacatat acatcaacat caatgtgcat tacttttttt tttaatttct cttcagatag 360
aatacgaatga atataaacat aagtatgaat tataaaattg tattgtatac tgtataaaat 420
taaattgt 427

```

<210> 1050

<211> 570

<212> DNA

<213> Ctenocephalides felis

<400> 1050

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aaatacaagg ggttgatatga aaccaactga tgactgtgat gatatgaaat gccaggagtg 60
caaaggtaac ctttgtaatg tcgatgtttt cccaagaaat cgcagggttt gcaacgctaa 120
agatgatgcc aagggaagttt gtctcaagcc acaagatact tgtttgagta ttttaaattgc 180
acaaggatga gccataaaat taggggtgcac cagcaacctg ttcaagaacc agaattctgaa 240
aaaaatgtgc gagaaaaaac cagaacgttg cccaacttgt gacaaaaacg aatgcaatgg 300
tgatgccaaa aaacacgaat gtgtttcttg tgatgaaaat gatgaaaatt gccttgacga 360
ccctgaaaaa gtcgagacga agaccaaatg catgggcaaa tgctacttag atattgacgg 420

```

agataaagtg aagagaggct gcaccgacac ctacaaatgc gataaggaaa cttgtctgga 480
 atgcgaggaa gagatttgca cgagcgaaat gtgctatgcg taaattgttt aaataatttt 540
 tgcaagtttt aaataaaatt tatcaacttn 570

<210> 1051

<211> 386

<212> DNA

<213> Ctenocephalides felis

<400> 1051

atagatgnac annctnaactn ncgaaaaccc cgncgncggg gcagaggcgc gntcaagcat 60
 anggtctttg gtatttcggt atggcggcga aaatatatcg ataatatatn gggattgggg 120
 tataggaant ganttaatat tttattggaa acaaaagttt aaaatagttt tgcttaacta 180
 ttatttatta aataattatt atgcatcatt ttaaaatcag tcatcattca tcataaatat 240
 cgatattcgt atttcaatat atcgcacacc tcaattaatt tatgtatcaa ttatattgat 300
 tganttattt gcgaatttct cagttatgaa aatgcagcaa tgctgtgat agctcttct 360
 agaataagtg cgtggatatc atgtgt 386

<210> 1052

<211> 537

<212> DNA

<213> Ctenocephalides felis

<400> 1052

cctctctcag ggtaaagtga tatgagctga tttggtttca tttatgcaaa tcttccattt 60
 ggcaagccac attttagtatt tattgatatg ttcttgcggt tgtcgggaag cttgatcagc 120
 actgtgatta tttttaaaagg ttttaacttat cgaaatacgg aaaagtcaaa attcgatttt 180
 ctgaaaattt cactactaggg gggcttctta atataagggt gtagtgaccg aggtcgctaa 240
 cgcgcggaacc tatgtggatg gtgtcaagtt ggacggacct gtccaagggc agtagtgcta 300
 cacattgnat atatgtatta ttttgtatta attttattca attacaattt aaaacaagct 360
 gtttgaaatg aaacctttgc ttccatattg tttactccag aatctaaaat tatgaataaa 420
 tgaatattct agtgaattat ttgtaaaagt tcttcttcaa cttagtatct aaaatacaac 480
 aaacaaactg cgcataaatc gagaatatta ttagacatca tgcagagtcc ctgccgg 537

<210> 1053

<211> 331

<212> DNA

<213> Ctenocephalides felis

<400> 1053

ggtctgaaac actttcaaac aaactcagaa ttatcgatga tattttggaa atgcaaaaaa 60
 tggctgatga gctaattatta ttggcacctc ttaaatcagt cgtaaccatt gaaacacttc 120
 gcaaaatgtc aaaaaaagga ttgacttatg agatacttaa aaaagcttac gaaggaaagg 180
 gagaagaggg ccttgaacaa attttgaaaa ctaaagtaac aaaggcaaag cttactataa 240
 acaatgttgt ggtgtttttt caaaaacatg caaatgatgt ttaatgaccc ttatttatca 300

gaaatatatt ataaatatatt aacatttttag t

331

<210> 1054

<211> 344

<212> DNA

<213> Ctenocephalides felis

<400> 1054

cagngattca tttcatattg gtatacatat ttctcaatat gncatttttc taaactttgt 60
 gggacagnaa tataccaagt tccttccgta attgntcatc tccaatatatt ccattatgag 120
 gaatgcttct aagcattttt aaataactgn ctggnaatcc agattctaac gtccttgaa 180
 taattgntc aaganatatt aaactaggct tcctatcttc tggaaaaggc tcacccgggt 240
 gcaacggagc aggcagttta ctttgctcat atattcggca cgatacattt tcgccactct 300
 tagttttgat gnttacatct ttagcaaagt atgtgttta atgt 344

<210> 1055

<211> 264

<212> DNA

<213> Ctenocephalides felis

<400> 1055

cccatattga acattttatt ttagcgacta cattagaaat gtaatagata aaaatgttat 60
 aaatctgcga atataaaata ttgtattttc ataaagaata ttattattct ttcttatttt 120
 ttgttcatag cagaatattt ttttcgcccc aaaaagccga cataatacac cactaaagac 180
 ttgtcgaaag ttgtggcgtc cgggactcgc aaattcaatt tgtgcacaat cgcgcggtga 240
 aatgcacaat ttccatttct atgt 264

<210> 1056

<211> 647

<212> DNA

<213> Ctenocephalides felis

<400> 1056

tatacatatt tcagtgagan atcagcaata gtttatgatt ttattgacgt tgtgaacgga 60
 catgtgntct gggngtttat aaatttgcgt atagaaacaa taataaatta cagtacataa 120
 tactgatttg attttactac cgnaacgatt tgcttcagat atttccagaa aaatgttagt 180
 tttcatacat tttatttaaat ttaatatctc cgacttgta ttactaagcg aaattttctc 240
 tcttttaaat atagaattct ttatagtatt cataatagtg aagctttaa gtatttctct 300
 cactatcacc cttttttata caaacgcatt ttgagaagta acgtgaaagc ttactttcga 360
 attggtgatg nttctatgaa tacttatatg tattataata tgnattaaat tgaatttttg 420
 cgtttcaata gaacttcaat cataaatttg aattgggggt aatattgggt ggggttgat 480
 tattaaaaga cttcgatatg aaaaaaatca atgggncatc aaatcctagn aggatatttt 540
 atgnggatac ctacacccg caatggnggn aatgggcaa aactggtatg accccgattt 600
 ttgacgaatt tttggtgggc gatggtgnaa actaaaaatt tntcgct 647

<210> 1057

<211> 499

<212> DNA

<213> Ctenocephalides felis

<400> 1057

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ctcaatgaaa tncctattnt gntctttttc tgctttacag gatttaatgc aaactgnggg 60
catannnaat tggaataact caaatcangt taaatgatct atttcagata aattattaca 120
gtatcttttc atnctaaaaa ttntatnccg cnttacgcan ttttaaaacg gtctctgatt 180
attttaatca tnatttgtaa taattaatgt aatgcttatg caagcattct nataatactg 240
taatttaaat attgnaanaa ttaaatgttt ntagggttng gactagtgtg tataacagat 300
aaattaatat attattgtng gattgtatgt aatnntttta agaatattaa natcagtgtt 360
tggnntatat agttngcaa tncgtgtctaa agtacctggg tattttnatt ttttttagga 420
tcattatgaa gcaattgcaa ananttatgt ncaaatttaa atttatatnt tttttgacca 480
ngtgccaatt tacttgnc 499

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<210> 1058

<211> 310

<212> DNA

<213> Ctenocephalides felis

<400> 1058

```

tttttttttt tttttttttt tttttttttt ttaatgattt aattaattta ttntaagcca 60
ataattgata ttaattatgc attaatcatt gnatttatac tttcctagaa aactatacat 120
cacatgttga aacaaattaa ggttcattggc ttctcgctt tccttagcgc ttgttttaa 180
tttgatccat tctttccgaa tcttgttact ntttggctcc catttntcat tgggagtga 240
cacgtttttc aatgtatcat taatggaatg ttttctatgt ttcaaatata tccaaattgc 300
ccaaagnngt 310

```

<210> 1059

<211> 215

<212> DNA

<213> Ctenocephalides felis

<400> 1059

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atctacaaca gcaccgataa cggcaacaac tttnccttgg gcacctgctg ctgctttggc 60
agcataactc ctgctgttcg ataaaatcga tgcgatttta cccgattctg ttttgctcag 120
ggttcgcaaa gtggaattga ttacggagtg catcttgtaa taaaatgtat agccagttga 180
gttgaattaa attgatctca cctgtaagct actgt 215

```

<210> 1060

<211> 275

<212> DNA

<213> Ctenocephalides felis

<400> 1060

agcaaaacgt ttccataact aggatatacct acttgaaaagt gatggctatt gttggtactt 60
attgcatttg gtccaaaaat ctcaggctta taatattggc ccacagaaga atatcctggc 120
ctgtactgag aaaatgcgta aggtgggtgga tggtaatcac agttcgccca ttggacaatc 180
gagatggcca ccaaaaatat tacagctttc attttagtca cttggtgaaa tatcacgaat 240
tgaaatattt caaccttcgc aaaaggagct tgtga 275

<210> 1061

<211> 330

<212> DNA

<213> Ctenocephalides felis

<400> 1061

nnnaagccct ttngaaaccc tnggaangan tctggcgccc tttcccgtaac atatccnagt 60
taatataat tatagcttct aaaataattc nntcacgatg tttattttgt ctcaacggtc 120
aaaataaata ctgatttttt tttttaaatg taaaagatca ataataatg aagcaaagat 180
tttataaaca tttttgctaa atttttatgt aattgaatta tttttcatgc tatatataat 240
ttatattggt agttaattat tagagatttt ctaaaaaaaa atgatctaaa atttgaata 300
gaacaaattt ttcattggcg cctaaattgt 330

<210> 1062

<211> 126

<212> DNA

<213> Ctenocephalides felis

<400> 1062

tttactactt cagaattatt tatttctagt aaacaacgaa tttaaacttt tagaatattc 60
aaaattaatt gcgacaagca atattaccat gcactcttga agattttaaa aaaaagtagt 120
taagggt 126

<210> 1063

<211> 116

<212> DNA

<213> Ctenocephalides felis

<400> 1063

ccgtttgtta tatattggca tacaatgca ttaagattag gctctgagac agtgattgaa 60
tgttattttt gttattttta ggaaatttaa taaaataatt attaaatcga aaaaaa 116

<210> 1064

<211> 333

<212> DNA

<213> Ctenocephalides felis

<400> 1064

```

aattaaaatt ttctaacatt cacaaaattg ntnntcaaan tccgaacgat attttcaaac 60
aataataaat taacaacgga cttagcaatt ataatatta cagctcacta ctacaaatta 120
catatTTTTt tcaatcatat atatatatat atagtttttg ttttaagatat ataacaacaa 180
tgTTTTctatc gcacatatca ttaaataatc tttcatatgc gacaagacaa gttttgcatt 240
aaaaaaatat atgttactaa tgacaatatt tagaatcaca cttgaagact cctcctcgga 300
gcctncgggg ggcgccgagt aaaacaacaa tgt                                     333

```

<210> 1065

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 1065

```

agtagagaat tgacagcagc nattgctgcg gaaaccgcac tcaactgaact tcagcagcaa 60
ggaaatgatg ttctcatggg tccatttata acaaaatgtc agctgccatt ggaaagtttt 120
cgattgttaa aaaccagcaa agccatagtc aataaaagaa gtttgaaata tcagatTTTT 180
ctgttcgaga atttaatact gtttactgaa cctactattg tgaacaatga agagtTTTTT 240
acctgcaaag actatatatc tggatagaat tttaccacct gtcgaatgtc agaagtcttt 300
atatgcattt accctgacga gttcagaaaa taaatctaga attttccata taaaatgctc 360
aagtggcgat gaaaggatcg tccctggatg actattatta ggaatatttt gtttcagcaa 420
caacaggcat gggaaaggaa gccatngaaa aataaattag ctttattctn ccgacaggag 480
ggcttccacc caanaacc                                     498

```

<210> 1066

<211> 264

<212> DNA

<213> *Ctenocephalides felis*

<400> 1066

```

aaccacgagc attcctattg ttaatgtcgt gactgacgta gcatcgatct tcgtttatct 60
tgcagactgc cactttagct gccaatccg cagcagtgtt gcttgtgcag gtgtcatcat 120
tttcgttgca ttttacacat ttcaggggat catttttatt acataggtta ctattgact 180
ttagacaaga cccagatgtt gcattttcgc attcttttct aatcgaatca gtttcaggta 240
aatcgaccaa acaacctttt ttg                                     264

```

<210> 1067

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 1067

```

tgtgactcat ttggagttct tgaagggtgt tcttctaccc aagctttatt agatccctgc 60
atgctcatgt tcaagctatg accaggtgga ggatgttcaa ttatgtcgaa ttgagagtta 120

```

```

cattgcgcac tccttacacc tagtgagttc agaactgtta tattctcagc tcctgatttt 180
gtgaaaagca tatattcttc taaaggntnc atagtatgat tgttgacttc aatatatata 240
tttgagaggc atcctgaata gctttttgaa tgtagcaa atctgggatcat ctgncgataa 300
accaccgatt tgtatttcat tgattccttc ttaggagatt ttacaaaatt gacttcgggt 360
aatatttcta aagatcttna agttctgtct attaacaata tgggagcctg ttgngatacc 420
cttttggnat nagacgggaa tgcttagcac cgttttagaa aanntttctn gtttaacttt 480
ngcttcacaa cacaagac

```

<210> 1068

<211> 422

<212> DNA

<213> *Ctenocephalides felis*

<400> 1068

```

taacctctaa tgacgtctta acacgtaaga caaggcaagc agatgatgct ccaaaagaac 60
ccgatttcaa ctagctaaa gaatacaacg actcctaccc ggtgggtttt aacatcattt 120
tatggttcgg agtagccttt ttcttctcgt tacttgctat ctgtatctcg atctccacaa 180
tggaccctgg cagggactcc attatttaca gaatgacatc cacacgcac aagaaggaga 240
attaaagttt gcgaaaggag tgtttttaat tgtaaataga ttgttttagta ttattacaat 300
gtaaccgagt tattaatttg tgatcaatat aaattaaaaa ttaaaatata atacttttgt 360
tgaaaatcga attattgntc tattatattt ttgtttttac attcctagta ttaccgaatt 420
gt

```

<210> 1069

<211> 288

<212> DNA

<213> *Ctenocephalides felis*

<400> 1069

```

catagaaata taatggaatt ttacttttaa cattgtttat aaactatact ttacaaatta 60
attgtaatat ataaatataa ttatattatt tcataaaata tttgttctct gactagtgtg 120
gatgttttcg tgctttctaa ataagggaag ttatatagga ctgtatgcct ttctgtgaac 180
aactctatgt atgttcta atgttttagga tttattttta taaaaatgaa tatataaata 240
tataaccgca ttaaaaaaaaa aannannaaa aaaaanaaan aaaaaaaaa 288

```

<210> 1070

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 1070

```

aatttacaat cagaatcaat cttacaatta gtgtagttgt ctatgagaga aaacatcggg 60
cggttggtcac aaaatgatta acagttatag aatgccatgt gtttaatacg cagtttaca 120
tataatgtta ctattgtagg ttggcatact gtaccgagtt ttattttttt tatgaaaaag 180
aagatagagt ggccaaatta ttttggtcat gtgatatttg ttccattaaa gatttatatga 240

```

```

gggcatgtgc attggtaggt gcatgattta atatTTTTgt accgttgcg aattgatttg 300
tgggtggagat actgtattaa agngtttcaa atagttttga aactgctctt gtgtgaaatt 360
tagtatagtc cccaattcaa tctaagangn cttgggtctt ccctttatgg tgtcagcact 420
tggataaact ttattctacc ttatccantt attttagtta nnatgctccg ccccttnggc 480
cagnatantt tgaaccga 498

```

<210> 1071

<211> 269

<212> DNA

<213> *Ctenocephalides felis*

<400> 1071

```

caggattact aatgnccgcg tttccactgt tncagnnatt ccgnaaacca ncnaccncgn 60
atatnaatat gaagctattg gtnaatggtc aataaatgca caaattattt cacaaatccc 120
gcatgagacc atnacgaata caagaattgg aagctttccc acagaggtaa taatagcacc 180
tattatggga aatcaatcgc atatncagct tncaacatta aaagaatgca taaatgcctg 240
ntctttcatt gngtctttac actcggncg 269

```

<210> 1072

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 1072

```

aagatttaaa caatatgtaa aatatttatg tcttttaatt taaaatgaat ttatangttt 60
tttactataa ctagttaatg aattatataa atattttaaa tattgttaag cactggttaa 120
ttttcgtata actgctatgc aaaatactgt tagatttgaa ttaattttac tgaatcaa 180
gaaaaaaaac aaagaaaacc agatacttca agtaaaactac acgtaaataa agaatgtttg 240
cataatatga tattattata ctcacaatgt tcttttgtgc gaagtaattg acaagtttt 300
tgaatactaa acaggtatgt aaaataatat gtatataata attatatgca catttcttaa 360
ataactgatt agttgncaaa atcacacgaa atggtagctn cccaatattt taaaagctac 420
ctaaatgnct aaatccctct ggtcggaagc taagtagcat caaacatgt ttncattatt 480
acggtaaaaat taacatta 498

```

<210> 1073

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 1073

```

aatgnttnca gatccagccn ccnaagaagc ggnttgnttg cttaaaccna tnggccaaat 60
ttgagatacn agctttgagc gantcagagt tttcttgga aatgttaatg gtaaaatgaa 120
aatatgaaaa atttcgcaat tnggacaaag attttcctaa catagaaata ttttgctgnt 180
ttatgatagt aaattatttc ataattagna atttaattat attttaatat taattgggta 240
ataacatgcn aattaatcga gaattgnttt aatgnttgat attttaacat taattgnggn 300

```

tgggcagata tttattaatt atatgttaag ttcgcgtntt tgctttttat ttaattaaaa 360
 ttaagattat tatattccn atcatgggtt aaaaaaacca tgnnttcatt naagggcnaa 420
 gtacccaag ttttngntta acaagggtt ttaaggnta ctgcagctan gcctcngtat 480
 tacatattcn acacttct 498

<210> 1074

<211> 437

<212> DNA

<213> Ctenocephalides felis

<400> 1074

caagaacaa gcataagatg gccatggcaa tgctatttta tgaggcagaa ttgccatgtg 60
 aagatttttt tccccgaaca ttatacaaga ttttccactt agattttttt tattacgata 120
 gttattaagt agtcggcatt tctgtttag tagtagtaag tagtagaaaa atatgaaaa 180
 aatatttgca atttattatc aaaaactcta atataagtcc cagatttttt tatctaattt 240
 tgtttattga tcaataatta ttattattat tattgttggt gttgttgacg atgaaatatg 300
 atttatatac aacaaattta tatttaaaat agatctttat aacttactga ctgnagatta 360
 ttggttaattg gntcgttgac caattcntgg tnccntggg tccattaaat gaaaaaaaa 420
 aaaaaaaaa aaaaaa 437

<210> 1075

<211> 324

<212> DNA

<213> Ctenocephalides felis

<400> 1075

ttttaaccct ttntaaccnt tngaantccc cnngntttcg gcnaaggccc acaccttgtg 60
 tangcngct taaacttana ncctttcatt ttaaataagac aagaagtgcc attgggggga 120
 nctattgatt ttgaanaacc accattcnaa anctcttatg gaggaggaga tagttattca 180
 tattctgcac caccncccc ttcttntaaa ntgaganaca agtgctcctg cacatccagc 240
 tgattatgaa ccaacggagt atggngaata tgcttatcgt cgtggtatgg attatgaaga 300
 tacaggaagt tccgctggaa gtng 324

<210> 1076

<211> 497

<212> DNA

<213> Ctenocephalides felis

<400> 1076

gaaatatgat aatatgttca aaataaaaat gataaaaata aatgagtgga ttatcaannc 60
 aggatattaa acataataga aattttttt gaaagttagt gaaattttt aagaaaaggt 120
 taatgacaaa gttgaattaa ttacctgtat gttgaatat ttgttagcac ttttgacta 180
 aacaagcttt tttacaaaa atgattttgt gagttaattt tccgccgaat aattagattt 240
 tgtaaataca aaattactaa aaaatttgtc ttttttaaaa ttattatttg aaaacacgaa 300
 taatattgtt ctctggatgt tgttcgattg gttttcgaaa attactaaa tgaaactggt 360

gtgccctttg tacacgtgta acacttgacg agagatggga gatggntggg gngngttttt 420
 atatgtcagg ggggaatact taaattgtgg atcttaaaag gaagtcgtat taattgtttg 480
 tcaaaaagtg aaaaaat 497

<210> 1077

<211> 354

<212> DNA

<213> Ctenocephalides felis

<400> 1077

ttttaaacc tttttnaacc cttttaagtt ccgcgnaggt ttccgcccga ggncccttna 60
 attggtaaat atttataaac tacnttttta attttgttca aactaatttg gatannggnt 120
 tacgnttaaa gctatatcaa nttggataat aaattattgt aagaatttac tactcattta 180
 cagcataata tataaagcac accataatat aatattattt tatctataat acaccatggc 240
 tgttaaaaaac accaaattta tattctcaaa tactaaccac atacaatcct gatttaaatt 300
 tgtataatat acgtttcaac tcaactaagt ctatcacaag aaattggacg tagt 354

<210> 1078

<211> 387

<212> DNA

<213> Ctenocephalides felis

<400> 1078

ttgntaaacc cntntnaacc ctcntggaan tccccaannn tttccccngc agccccnaat 60
 aatnntactt cnagttaacc tancacgatt attnttataa tttttttgnt aattnnangg 120
 tctgggnctn gatgtcacct cactgnncat atgaaacaaa natgtgacgc tctttataaa 180
 tttatcacta ccttatctat aatcatatca cctcacataa atttcatacc atgggtgtat 240
 ttacaaaatt cagacagtag ttgcagagat gtattcgaaa tttgaatcat taaacaaaaa 300
 tattttgata aaattgatat gtctctcctt aaaaaaaatt gaatttctca tttataatta 360
 tttcttgntc tgggcatatg taatagt 387

<210> 1079

<211> 467

<212> DNA

<213> Ctenocephalides felis

<400> 1079

cgncaccaat ggggttttccc naaatttttn ttccggnccgg accnggnggc aaaagtgnaa 60
 ccgttttttc cgncgcagga gaatggnaaa aattttnntc atgggttttt gggtnaccac 120
 caatnggcaa taaaaccttt tgggttgccc aatnggctng ccctttgtta aaccggggtg 180
 cgngcatccc ccccccccg cgaagnatgc aaagtggaga atggttaagt agggcttaac 240
 ccaggaaacc atcttgatag actaatnngg ttcaattatc ataagtagtc attatttata 300
 atccacaatg actggcatta atataaaaat tgttaaaatt aaatgttaaa tgttttatgt 360
 angggccaac aaangcatat ntgtattctg gtattaaatt tantttgagc ttttgatctg 420
 ttttttataa ataacgttgc cgcttgaaaa aaaaaaaaaa aaaaaaa 467

<210> 1080

<211> 489

<212> DNA

<213> Ctenocephalides felis

<400> 1080

```

annccnccnt caccgaangg gtttgcccca aaatTTTTTT tggngcngaa ccngctngca 60
aagggggnaa ccgtTTTTTt cgnncnagga gntggtaaaa atTTTTTcca tggTTTTtng 120
gttaccanca aangncaant aaacnnttat ggntngtcca aanggcttgg cnctttgnta 180
aaccggagtt gcgatgcatt cccncccccc ccggcggaag aatgcaaaag tngagatgct 240
aagtaggggt taaccagga aaccatcttg atagctaatt nggatccaa tatcataagt 300
gtccatttaa tataataatn cacaatgact gngcaattaa tataaaaaat tgtttaaaaa 360
ttaaagtatg aaaatgtntt ttatgtangn gcnaaccaa aatggcatta cttagtaat 420
ttccggtttt taaaatTTTT aatTTTgaag cctTTggaat tncntgttct ttataaaaa 480
taaatcgtg                                     489

```

<210> 1081

<211> 386

<212> DNA

<213> Ctenocephalides felis

<400> 1081

```

nacctcnttg gatttgcccc aannggtttt gggccaattt ancctttcnt acctttnnca 60
aattggnncg gtantnccg acggtTTTTt taaaccaata attaaggggc caccgggntn 120
ncantntna antnttccag ctctancnc naaataccat atTTTnttca atcatntatn 180
tntntaattt aggtttgggt ttnangaatt ataccaccaa tngtttctat cggcncattt 240
aatnaaatat cctttcatta tngcgancaa ggacaagttt tgnattaaaa aaantttntg 300
ttacttaatg gacaatattt agaaatcaca ctttgaagac tccttcctcg ganccttcg 360
ggggcgccg agnaaaacca acaatg                                     386

```

<210> 1082

<211> 436

<212> DNA

<213> Ctenocephalides felis

<400> 1082

```

gaattngnca ggcagcantt ggettgcggg aaacccgtcc tncctgganc ttcaaccagg 60
nanggaaan ganggttcct catgggtccc atTTTTaaca aaaatgtcag ctggccattg 120
ggaaagggtt ccgattggtt naaaaaacca gcaaagccat tagtcaaata aaaagaagt 180
tgaaaatatt agatTTTTtct gttccgagaa tttaatactg ttactgaac ctactattgt 240
gaacaatgaa gagtTTTTtta cctgcaaaga ctatatatct ggatagaatt ttaccacctg 300
tcgaatgtca gaagtcttta tatgcattta ccctgacgag ttcagaaaat aaatctagaa 360
ttttccatat aaaatgtcga agtggcgatg aaagatcgtc ctggatgcta ttattaggaa 420
tattgttca gcacaa                                     436

```


<210> 1083

<211> 497

<212> DNA

<213> Ctenocephalides felis

<400> 1083

```

atntttngnt nccatngctc aanggcgnta ttggccccnc agccgggctg ccaaaangct 60
nctnngtccg caccgnctta ntcgtttggc angattatcc ntgtttaatt ttcgcctttc 120
gtccccaaaa tcttttggga tcttgatcat gtaaaagtgn tttaacggct ttgcttcgta 180
tgcatgcagg tgcatatct acgagaagaa aaaaattggt tgctggggga gagttacaag 240
atcttatgtc gagactatgg gccatataat caatgggtgg gggctggaga ggatctgntt 300
taagcattgc tgaggatctg agaaatcgta aatatnccat ccattcatgg acaggagaag 360
taatgattnc tgagatgcat ggctatggta aaccatccgc attataaaaa gnggttgccn 420
ccgcgtncnc ccacncatt gntgtcaatt attnactggc tnctgacaat gctntggcgt 480
tccaagatnn cctcatc

```

497

<210> 1084

<211> 281

<212> DNA

<213> Ctenocephalides felis

<400> 1084

```

aagtgttaact gtaattgatc cnttttatct taaattacag ntanaaatc cgnaaaatc 60
ttnacccgat gatatacaca aaacgactta taaaaaatta ttaaagcaaa tattgntttt 120
actcttagac cgcggacaat gtgccatatt gttgtaatgg atttttgata gaaatgtagc 180
tttaaaaaaa aacatcttga ctcggnatct attattatta aatcatcaat ttgtgtgctt 240
tacaactaag ctatatttct gatccaaaat gcaatactcg t

```

281

<210> 1085

<211> 489

<212> DNA

<213> Ctenocephalides felis

<400> 1085

```

tttttttttt tttttttttt cgntttccgc atntccacaa gccaaaacca agcctgngcc 60
agcattaaaa acccaatcct tntcngttn tttcagngct atttcanata ttaactntgt 120
ttntaaccgn ntnaatacct tttcaggatc gcgtatggcc tcatttttgn gtgtnaacct 180
gnggncaaca tcgccaatcc atgttaccaa tcgatactta cgattagcaa acatttcacc 240
gagtcceaaa cgtnntnta acctatggna ctgnatagct aattganggc aanancgcca 300
tgctgttgcn cagaatccaa accattngat ttattggttt catatctgnt ggactaacgc 360
attcttttag ttggtcttga gaaactctaa atcttcaaag ttggngnga gaacaactaa 420
acgagngccc tgaatcgnaa atntccaaa nntnncnt cccggtttta naaganggga 480
actggngaa

```

489

<210> 1086

<211> 389

<212> DNA

<213> Ctenocephalides felis

<400> 1086

```

ccnggccagg tccattccag gangtgggaa cctttttaag gaagnctcct nanggagggc 60
attnccccc ngggggaccg ggaaaaatcg cccattagct tgggtcggnc cctggccnat 120
atgtaatngn ccaaggggggt atcccctctt tgcaatgggt gggagggttg ctgggaaaaa 180
ggtactttac tcctatcttc tcaagactgg caaagggtt taaacttctt tagttggaat 240
ttgggggata ttagattaga aatataatgg aaatgnga atagaaaaaa aattaaatat 300
acaatagtat tttaaattgg ccacatctat ctatgcatnc ataaataaag gtatatacag 360
cattcaaaaa aaaaaaaaaa aaaaaaaaaa 389

```

<210> 1087

<211> 499

<212> DNA

<213> Ctenocephalides felis

<400> 1087

```

tttttttttt ttttttttgg taaaaaat tttttttatt aaantgnttt accaccana 60
taatacctct ggcntaaaat tggaaattat tctaacaaaa gtttgggnt atggcatgaa 120
tgccacttaa cactaccagc aattttgtct cagcataaaa tttcataaat agaggagctc 180
aaaaagacaa aataaccata atatagtcac taacattaac aaaaatataa tattatctat 240
taaaaagnaa agcaaatata atctttgaaa aatattctta cacacactca catatatatg 300
cctttgcata gactccgaat ggagcgagat caaaataata acatgggcat catncactc 360
aaagacaaat agtataataa taatatgcgg gtaaatatca ttcattcatt tttttttttt 420
attgccggtt atccgnggcc caataataaa antnaatttt catattaaat ttaaagncaa 480
tttggttacc gnnagaagga 499

```

<210> 1088

<211> 303

<212> DNA

<213> Ctenocephalides felis

<400> 1088

```

tttttgggca aaaagactaa caattaataa ccaacacata ataaaaataa attgntggga 60
tagaaaattg attcaatttt ctactcgatt aacaaaattg ncctttatct gattatgngn 120
tgngntttat tatatattat tattaatatt gatcgatgga ttttaattaca ctgattttgc 180
atttaagtga gtttatccta ttattggttg gttttggtat ttaattaatt gaccagcgtg 240
agaagaactt tcttgnagtc tcctgatgta tcgncggaga tcagctctcc aaactcttct 300
cgt 303

```

<210> 1089

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 1089

```

acctaataatt ataattattaa aaacaaatca ataaaaataaa tagcaaagta aatttttagtg 60
ttaacttttat aaataccaat catcattttt atatgatttg tataaaaaact tatattccat 120
aaaataaattt atatatcatg aacatagaaa gtgtttatgt atcatttcat tcttatatca 180
atctaaaaat tataatatta tgaaatataa atttttagttg taaaattgaa atatgtcgag 240
gttataaaatc ataaaaaatt ataataatac tataacctcct aaaatagcat tgccaatagt 300
ttgtttatat aaacttcttg cgatcgaact tcttttcggt catttcccga gattaaacat 360
gaaaagccca cggttttcga atgcattgaa taaaatgatt tgcttaatcg cagcctaata 420
taatattcat caggctatta tgaaaatatt ggatacaatt tttatataaa accattcctnt 480
agaaccatta gaaaatat
498

```

<210> 1090

<211> 499

<212> DNA

<213> *Ctenocephalides felis*

<400> 1090

```

cacccccagag ctttcnaatt ggtaatggtc gggactggac gtngcatcga tctttcgntt 60
tatcttggag actgggactt ttagctgccca attcccgag cagnggttgc tttgtgcagg 120
nggtcatcat ttctgttgca ttttacacat ttcaggggat catttttatt acatagggtta 180
ctattgcact ttagacaaga ccagatggtt gcattttcgc attcttttct aatcgaatca 240
gcttcaggta aatcgaccaa acaacctttt tttgtttcag tgccgntaac atagatgtaa 300
cacaatcctt cacatttttt ttctccccg catccggtga catgacgggc gctcgaaatc 360
ttattattgc atgtagcacc gcacaagttt tgcaaagagt attgncatcg cagatatcct 420
cgtgcgacc ctogattact ttaccttttc tagttagcgn agcataatct ccattcatat 480
gctaacaatc ttgcttcga
499

```

<210> 1091

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1091

```

cctggctaant nttaaagtgc ttgggattct ataaaanttg gnttttaaaa aagctggatt 60
tataatacaa agcagggtt cnttttcgat ttgtcacata tatattaact tttttcaa 120
caatttatct atgcatttag tttatccatt ttctaactta caaaatataa ttctaaatag 180
ttcaataagt aacagaatct aataataaca taaaataata atatataacc tctggacagt 240
aaacatggta gagattttta aatgacaaaa cacattcttg aaaatgaagt tcaaaacaat 300
atctagtttt gatcaagagt ttctttggtt atgactaaag ttttcaaaca tcacgtaaga 360
atggnaataa ttgacttgaa taatgcttcc tatcaatcaa tttttatgta aatcataaaa 420
ggtaaaatta aacaggantg ctgntataaa attactgnca cttccccaaa atattatttc 480
atctctaatt accatagata
500

```

<210> 1092
 <211> 308
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 1092
 ccccttcagt aatttcctttt tttttttaaa ttancgaaaa atcaganaac agttattcca 60
 aagatcatgg gncttgntgn ncttctttaa gcttatttcc taccctaaag tgtaactat 120
 tactacctaa actgcgatga tttttgtgat gaatgatgtt gacatgatgt ccgaagacgt 180
 tggctaagat gcggnataat tctgttcctg gtcacatcgt gttccctttc ctggtaattc 240
 ttacttggtc ccaatcttca gcacggccgt tctaacgtgg agcaagcttc gagccagttt 300
 cttcaaaag 308

<210> 1093
 <211> 498
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 1093
 tatcagtatc acccttacgt gaatactccg aaaaaatcat tgaagcacga agaacagaag 60
 caccttactt actaccaccg cttttaagcc actacgatag ttcccaaaca agacctttat 120
 ccagcttgca gcatctcatg atcgatcaaa acactttaat cgaaggcttg aaattgggtg 180
 gtgtcgatgg atcttcatta aaacaactag ctactttgc acattgcccg ataactatga 240
 acatgggtca cagacatagt tgggtcgagg ctggcacttc tttagggaagt gcttcggntt 300
 tgagctcttt aaacaacgat gtggatagcg cacaagntca ccaggattat ccaggaaaat 360
 taacaccgga agaataattc ttttgtgtca tggaacgagc agtaaatgga ccaactgngt 420
 ctggacaatt actgnagang gaccatntaa cgctttgcca agcgtttana aatgancatt 480
 tntgaatgtg nncnaac 498

<210> 1094
 <211> 228
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 1094
 cgtttttnaca gcaaaaaaacc aagccttgat tggccgaagt ggtcgggtgg cttctcatgt 60
 ggattcatat aaatcaagct tttgtggttg ctttgtgatg aatgggtgct ttggttgaaa 120
 ttgntcttc atggttcatt taagattcaa cgatcctggt gaattgggnt gaaccaactc 180
 ggctcaaaaa tcaggcgacg aagaagagct ttcctgaatc ctctccgt 228

<210> 1095
 <211> 308
 <212> DNA

<213> Ctenocephalides felis

<400> 1095

```
cctaagtgng gttttangct aaccangaaa aataagggtt aaaaaaggnc naaccttnaa 60
atgggataaa anccattaaa atcantttct ttancacatt ctagtccacac actttgatcc 120
gaaagggtgc cccgaatcgg cagaatttat gaattttatt ataaattcac aatgatcgca 180
tcacataaaa ttgnctttta atctgnttat cttgcaggaa aaatatcgca aacacgtttt 240
ttnttggtt ctaactcaat atttaacaca cgtaaattat cacaccgtta ggcaagctga 300
tggnctgg                                     308
```

<210> 1096

<211> 335

<212> DNA

<213> Ctenocephalides felis

<400> 1096

```
ctttctttta aattgtaaca tctatatcat gaaatcatga tcggctccct ggtttatttc 60
taccgattac tacagtatta tatttataat atgttcaata tagcactgng gtccaatttt 120
atthtgacca aagggtttata taaaaatcca ggthttcttg atcatgtaaa atgntgggtcc 180
attatcttaa attattatat tcagaatgat atataatcca ttcaactttc taaaacaaac 240
aagaaatctg tgcaacgtct gatatctgng aatatgtatt ggatttaata tatatgttaa 300
gngnttaaaa atatatttct atttcatata cttgn                                     335
```

<210> 1097

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1097

```
ccttagacct ccaaactctt ttttaaggaa aaatcccccg gaaaaatagc ccttnccatat 60
tccgcctgnt tatacttgtg acaagnntaa aggatttaat ttaagcgact tctgtattta 120
tgtaattcac ctactctaaa ttaagactgn aatttatcat tatctgacat agtttttttg 180
ttttacgtat tttttattaa aattcttgtg aagttcaaca agtagaatat tgntttttta 240
attgggttat ttggacctta gaatattcta aaatactcta ttacataga gagagcaaga 300
tgcttaaatt tatacaatat gtcgagtaaa accaaaaaaa acgtaaactt gcatgctttc 360
tagacatgct gctataatca taaaaaacag ttttgccatc ttgaaataag gcagacttat 420
attatataca ttaataatgg ntcgacacnt attgtgntca ttggaatgaa ataatacagg 480
nggaatataa ttttcttntg                                     500
```

<210> 1098

<211> 392

<212> DNA

<213> Ctenocephalides felis

<400> 1098

```

cacnntnttt ntntaagttt tttccctgta aatngtaa atganttgg ttngngaaaa 60
tagtggcngg ggtncatgtt aacaaaaact atgggacctc ttggataatt taatcactta 120
tttatatttg cccgcgtggt aatatttaag atatgaaatc tatagaagcg atcctttgta 180
tgacaaagtt gacattgtta atcatatata caatgatttg cgacatatgt tatgggtgta 240
tttgccctta aaaatctaca tgtgtagtga atttgttctg cttctacgtg ataaatgctt 300
ggatatagn tttgatcttt ttataaatat catatatatt ggattaaaca atcaaaagaa 360
ataaaaatgt aaaaaaaaaa aaaaaaaaaa aa 392

```

<210> 1099

<211> 362

<212> DNA

<213> Ctenocephalides felis

<400> 1099

```

tttttttttt tttttttttt ttttttcant tttctatctt ttattattta agccataaat 60
atatatatag tataagnata ggctaactac cttttattat tcccgaacc atttcaataa 120
tttcaactat tcttagattt tcttttattt ctcagacaaa accacatatg cttgttaatc 180
tcaaaacgaa taattatcat ttttgtttat gactatataa ttatacatat gcgggcctac 240
ttagtattca naaatacttt atacaggtag cttatcattt tagataatat cattcaattt 300
tgttatttgn attacttcaa taaaaataac acctaataa ttttttcaat tgatgaaata 360
tg 362

```

<210> 1100

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1100

```

caangaatat angggttttt antggcacca taatggcttt taaacttggg gttggttggg 60
aaaacaaaatt tgggttggag gggataaccg ccanttttag gattcaaat acctccgcca 120
atcacacaaa aacactttta aaattccttc taccagaaaa aaaaatggca aaaagaaaaa 180
cacgttttta accagttaca ggagtntac tcctcaatcc aatgaaattt tatgcagttc 240
tgttcaaat tatatctgnt gnaatattta aaaaagttaa acttttgcct aaccaatgaa 300
aataagatct caatagaaga cttaaattaa atatgatagt gatcatgagc atatgttcat 360
aaatcaactt tctgattgat tttctatgat aaatgcattg nctacactat ttacttacta 420
ctacacggtc cttacaggaa tgnatataaa ttaaaatatg catatattta tattcattgn 480
gggaaaccgg atttgaa 498

```

<210> 1101

<211> 319

<212> DNA

<213> Ctenocephalides felis

<400> 1101

```

ctacntnaaa gggggtggct tttcttaagc agntggcata ncccaaggca gcacccactg 60

```

```

caaanggctc ttataaaaaa naggtatttc tttggcaatt taaattcttt ctttcancgt 120
taagacccgt gatacccat ttttttggt tttctttga tttttcttta agcaattccc 180
tctgctttgt caattttcct atcaacaaat ctctcaattt tatccattaa tttaggagtt 240
tctccagtaa caagcctctt caattttatc tgtcacctta tcagcctttt tagttacttt 300
atcccgatca atagaaatg 319

```

<210> 1102

<211> 283

<212> DNA

<213> Ctenocephalides felis

<400> 1102

```

ttgggcnttt ggtnggtatt ttaanaacaa gaagcatttt nttgggactt ggacttttca 60
ctactcataa gaaagcatca aaagaaaact gggntctgggt attttgggtg agggttggga 120
ctaaatatca tcgacnggg gttttactta aaacttttcc ctcatatcct taaaaatctc 180
ttgatgggct tccaaaactt gtccgagaat ttcacaaaag taacctccgt tccaaaagaa 240
ctttttgtca aaacacgtgg ggttaaaagt gcaggtcaca agt 283

```

<210> 1103

<211> 287

<212> DNA

<213> Ctenocephalides felis

<400> 1103

```

tatcaagcaa actgaatttg atctgaggtt aaactgaatt caaganataa aagcatcacc 60
nantatgtat agataaaaaga taaagattgt aaaaagtttg agaaacactg tttggatggg 120
gaaacgaaat atagaaaaca caaaagttaa aatatatata tactcagccc caaataatat 180
aatttaaaat tatgggttaag tttgtttagt agctcagtg taatagcatt agccttgcaa 240
ccagaattgc agattccatt ccttcattaa acctgatatc aagcagt 287

```

<210> 1104

<211> 434

<212> DNA

<213> Ctenocephalides felis

<400> 1104

```

accatatcnt atttttggn taantggaat gncatttaat ttggctacta atacttctat 60
ggaaattcat tttttaaata aggtggnnta aataaataat ttcattgnaa agncacatca 120
aaacttttct ccaaatatag ntctataata tttagttttt agcctgntat cactattaga 180
ttaaattata aattgnttgn aattggctaa ttgnaaagng nttataaatg aacttttgnt 240
gncatttgnt atgaagatat atgtattttg aagcatattt tttgtaacat tgtgcaaag 300
cttatttggt tgggttgnat aggaaaataa ttatgattct tattactcat taaactataa 360
taaattttag cccatggtaa acattacaat taagtatcta tttagcaaaa aaaaaaaaaa 420
aaaaaaaaaa aan 434

```

<210> 1105

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1105

```

ntttgagccc ctcgngtct tgaagcccn tnaangggc cccgggcggg ggaccaagcc 60
caaaggnnta tttggttctt tcnacnggta atcaaaaatt ggctttttat attttaaaan 120
tggataantt aagntttant anttggcccc cgganaatcg ggccataaaa aaaaaaaat 180
ggatggatgg tttttaacnc ccnaattatt attataccat ttggtctttg nggggggag 240
aatgcnccct gntattatth tggaccccg ccccttcggg ggctatgcca agggntatat 300
tgggaggtgg ggggnaagaa tatttttcaa anantatatt ttgctttacc ttttaataga 360
aaatattata tttttggtaa tggtaaattg ctatattaat gggatattttg gtctttttga 420
gccnctatt tatgaaattt atgctgggac caaattgctg gnagnngtaa gtggngcatt 480
catgccntaa ctnccaac

```

<210> 1106

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1106

```

ggnnnttttg aagcccttnn nnnaaangaa gctcttngnn agctcnaatn ncgttnggcc 60
gaccggcccg gtncaacagt ggcattggacc ttggccttta acggtcantt ctaaggatgg 120
gggttnttta ntcttggggt gggatattggc tttangggcc ttaaattctt nctnanganc 180
ccaaattact aaatcannat ncaagccttn tttggnttgg ctttttangn catccaagcc 240
agntaatttc gcanggcccg cagataataa acgagatcat catgagcttt aaagnccttt 300
ttaaaancac cgggccataa taaanataat caaactggat accaacaatt ncaccccaag 360
cttttaagga atcaaggngg acaccattgn acaggccttn antgcacaag tggaggngaa 420
tgacactgct tncatatcat atctttgttt tcaaagcttg cataattttc tggatacctt 480
cttctcta at gggggacgca

```

<210> 1107

<211> 370

<212> DNA

<213> Ctenocephalides felis

<400> 1107

```

cctaccttta ctttctact tacccttacc tacgctttac cnacccttnc cnacccttnn 60
accccgggcc ttttactgg ttactnacta ttggctaggg gntttggngc tnaatcnccn 120
ncgaagagct nctnnaagaa agaacaggca aattttggnt nacaacctnc attctttgnt 180
accnatcatt antatggcna ctactctatg gncaccnatc gnttaacaat caggcaatct 240
gntcttggtt ttgggggngc gggattgaaa cccgaatcg gnttcgaaaa tgaacannaa 300
tatttgccn tattaaatgg tggtaaaata tnccaattaa tggattattt catcactttc 360
gnaannnaaa

```


<210> 1108

<211> 149

<212> DNA

<213> Ctenocephalides felis

<400> 1108

```

tttttggtgn tatatcactt tcctttgcag gtgcctntga accgggcgtc ttatttaa
60
catcgctttc ttgattatta tcctcagcgc tttcctgatt ggtatcgtct ttatgcgtca
120
aagttgccaa gatcggttgc ttatttgg
149

```

<210> 1109

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1109

```

atattagtaa taagtggcca tcaaagatat taaaattaat ttgccagtcc tgtttattgg
60
gggangaact tcaaaatcat ctattacaag gattatttca agtgccattg gtagataaaa
120
cataaagtag atatacctta atgccaggag tatatatata actaatgaaa aatgaactaa
180
atgtgaactg gatttcaaat ttgactgga tctgtaactt ttgtagttc ctttctatta
240
aataggatat ttgtattcac cgcattttat gacctgaagg aggtcaaata ttccactgtt
300
tcttttgcac aaattttatt aagtgatagt aagaatttta tacttagggc taatcaaaag
360
agccggcaca cttatttttt ctaatttcat aattaaaaat tggctatatt tgcctaagt
420
tgnaaaggtc ttagttattg naaaattata ttatagcgat agattcattt tcattgtggg
480
atgacttatt gattgaca
498

```

<210> 1110

<211> 400

<212> DNA

<213> Ctenocephalides felis

<400> 1110

```

tttattctat aatgaaatga ataatgntac tccaaatata atagtatgtc tttcatggna
60
aatttatatg tatatatatt atatttatat atttgnatat atgcacaatt gtgtatgctt
120
atatctttac atatgtgcaa atatagtttt atggatgtat atagatgtgt aagaatattt
180
tatgtaattt ttattaactc gtttaaaatt gagtttatta cttctaaaac cacttgcaat
240
ttgattgact ttttggatac tgncttaatt aaagtatgat gcattttaaa tatgaaaata
300
gaaatagtta acagtaaact aaacaagctt tgttgctagt gtaaaatgga aaaatcattt
360
atgtttttat agctttttaa catgtttcaa tttgataagg
400

```

<210> 1111

<211> 379

<212> DNA

<213> Ctenocephalides felis

<400> 1111

```

caaatattgg tgcacacag gctcatggga ttttataaa acatagaatg nggggaatat 60
atcaatcata taaaatttac atgcttcata ctagacaaac aattaaagat caaacattat 120
ttttatata tttatatata aaattgaatg atcaaattct ttctttgcaa aaaccacata 180
ttattgaagc ataaatttag aaatcaaata aataaaatag cacaccaaac attatgttat 240
tagtttatgt gtcaaatcac atattgttat aaattttgag taatatacaa ttataggcgt 300
gttttttaca tttttcattt cagaggctct taaaacttat acaatatatt atttactatt 360
attgttaaaa cggtttagt                                     379

```

<210> 1112

<211> 486

<212> DNA

<213> Ctenocephalides felis

<400> 1112

```

tttttaagnc cccttnttga aagccctttg gggnttance gtgggtccnn gggcgggggt 60
cccccaagg tggnttggg ggaaancnta cccnccaaat ttttttaac caatttantt 120
aataccttan tgggcctaag aaaaggccga aggtggtaaa gggtcaaggg gttggtatta 180
gcttaantaa aaggtaaaac tttttaaaaa nggtgatgga atttatctgg caaaataggt 240
ccaaaattca aaaaattact attattaatg gnntattgga aataatgctt tttattagga 300
attggcattt tcaantctgg tttttaaaat tggnttggtg aaatcaccag caccaaggat 360
cccaaccaca cantttcatc tnaccagaaa gaacnaaaat taattttaat ggttattaaa 420
aattacatta ttaaaataac tttttacnaa taaaggtaac cctacnttga gaatggtgtt 480
ggtttc                                     486

```

<210> 1113

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1113

```

ccgacnggtg gaaattggca ntgganccag ccnaaantgg nngggcccg gcaaaggtan 60
taaaagaant ggggattggg cantttattg acgggggcaa naacttttgg cgaatttttt 120
ttaacacata tttttagaaa tggacatatc atagttaggg tggggattcg aaaaactgnc 180
tttancatct tttgaaaata aggtatnttg ggcagncttt cggatctggc tgatataccta 240
caaccgcgc catgtagttt ctgccgctta caagttttcc caaggttttg atgagccata 300
tcatctacac aaaatgggac atcggaattg aagctctgca atngattggt ggaattgggg 360
gttctttgtc acgccacttc aaagtanaca atcgtgacaa atgttcant ggtattatac 420
ctnggccgga cccgctaagc caaatttgag attcatnaan tggnggccgt ngagctgctt 480
taaggccaat cgcctatagn                                     500

```

<210> 1114

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1114

```

gctagctaca agttgttgaa atattattaa attttattat tatatttggt ttttttctgn 60
atgggggttta aattacattc catgataatt ttcagtttta tataatctaa taaattcaat 120
ttaactgttg aaatttgatc atattgtgta tatacatagc aatataaaat ataaagttac 180
acattgtctg tttcattata actgtactgc aaaattaatt attttgattg tttgttactg 240
tattattaaa gttattcaga ttcagtcaaa atttaaattgt ttggcctaaa cttattattg 300
aaatattgcc aatagtgtat tattacttag caattatgta taaagatttt atttattaaa 360
gcaatattcg aatgtctgta atatcataaa ttatgtatat aaataaatat atcaatgtga 420
acaataacag agaacataag ctcaaaatca tcatactatg tctggaaaat caaatataaa 480
tngtttttag ngtaaataaa 500

```

<210> 1115

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1115

```

ttttntngtt tttttttttt ttttttttgg ggattagaaa attaataattt catttaaaaa 60
aataatgggg tattacagga ttattgtttc tataaacaac ctacataata tggcatgatt 120
tttttcaata atcaatttga ttcgcaaatg aatcttctgg ctggatgcag attttgtcgt 180
tccatccttc cttgctggat ttgnatactg cttctacaca attttctttt cctctgtaat 240
tatttgggtc accacgaacc catttttcaa aagtcattgg ctttgaattt tcaatatgcc 300
cacaaatttt gatcgatctg ctgattgttt accagctgtc caaaacattt gtttggcacg 360
gtaattgctg ttaacaaatt tctcaaattt tcatattgna atggagntca atggntgcc 420
ccctgcgtcc aagctttttt accaaaagca ttttggtaa ccagttcact tangaggncg 480
aaaatgaaaa ctttttccgt 500

```

<210> 1116

<211> 317

<212> DNA

<213> Ctenocephalides felis

<400> 1116

```

aggggaaaaat tctttttttt gaaaactggg attctgnagt ttgcncgccg ggtggctttg 60
cgacgttttt agttccttga acgacataat cattattcat ttcttgagag tctatcaaac 120
tgattataat tgcttcgttt tcgttcaccg cagttttggc ttgttttatt tccggtttct 180
tttgtagttc aagttctaca tttgtctgac tcattatatt ttcggttaca ataagagggt 240
cttgcggttt ttgtattaat tttgcattat ctaatctctt agtatcttca acaaactcac 300
tttctttttc acgaagt 317

```

<210> 1117

<211> 307

<212> DNA

<213> Ctenocephalides felis

<400> 1117

```

taccgtattc aggtcccaaa ccatcattaa aatggtagca ttaatcaaaa atcaaagaat 60
cattattcaa attccaagga agtaaaataa aaaataattt ctttattcac ttattgggag 120
tgagtataaa tctaattttg gattcccgat gattgttgca aagctccatt agtctttatt 180
aatacatttt tattttttta tttatttgca ttgtaattgt tgattcagac accgcacacg 240
accgcccaga tggcgctgta gtcttgctcc tctgccggcc gtaacgtcaa agtaatttgg 300
ttgttgt                                     307

```

<210> 1118

<211> 374

<212> DNA

<213> Ctenocephalides felis

<400> 1118

```

ctgggggaaa ggnctccaac cnagnngccg gttttgcaaa aaaccactct tggctgggtt 60
ggaattctca tctattaagt taagaantct tttgcttcat ttcaattatt ttcaaaatat 120
gattgatctc ttcttcagtt gngngntccc ggccgtctat ttcgcaacca tgcttcatt 180
ctgcagggaa ttctgatca aacttttctt ttattgntgg ctcaaaatat ctattcgctt 240
tgcgtttacc aatgctagga tttcctggag tttcataata cttattgcct aggtgatctt 300
ttccaataaa gtttgcttta atatttgctt ttccaatctt gaatgagtta taaagggttt 360
aaagacttga aggn                                     374

```

<210> 1119

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1119

```

tttatcaaaa atcctagttt atgagtagtg tgaagccaga aggccgtaag gtcgtgaaag 60
atctgaacgt ccatcaacat cttcaatgga tgaaatcgtc gcctaagtca agaaatggtg 120
ttggtaaact accatttagg ttcagtcaag ttagtttttg accttaacat atctaacaaa 180
tcaattatac catcaaattg ggcattgagc gctttgctgt tcatctctac catcattgtt 240
gaactctctt cacacaacgc ctatattgtg aacgcttttt tggccataaa ctcatgaaat 300
atcatgggac aaccaacgta ttcactagat ctatccttct gtaaattatt tattgtcatg 360
gatacttaag tatagaatta caagtaatac tattgttaga tacctctttg gatcgataga 420
ttccactaca atggttggtg agaaaaaac gccaaagggc tgaagaatat cttataaag 480
gcgttttaaaa gatgcttt                                     498

```

<210> 1120

<211> 455

<212> DNA

<213> Ctenocephalides felis

<400> 1120

```

gcgtnacata tctggaattt ttttggtgaa ttatttttaa tgtaataaat catagtaata 60
tttatttcca angtgcaa atggaaacta ccatccctat attatatata attgtatata 120
ttcctgaatt gttttatttg aatttatttt aaacacaaac ttttaattata ttcaaataat 180
gatggatgtg atttcatata tccctaaact ttggatcaga gtttgagaga agcctagcca 240
tagtgtatag aaaattatgt gtaggtgtat aattaagatt gcaggagtca aatatataaa 300
gcattgatac aaattataca ttccaatttt ctgtaaaccg tgttcttttg ttgattatgg 360
tttatatcac aatttatgaa tcatgtaaat taattgtaaa tttgaaatgt atctncgatg 420
tnaatgtatt gaaaaaaaaa aaaaaaaaaa aaaaa 455

```

<210> 1121

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1121

```

cttgaagccc tngggagnac nnaagccctt cggcgncnccn caggggcnna cctcccggca 60
ggggctcgtg gggtagttct tggcaaatta attattattc attaatatgg atttatatng 120
atatggaata aaaatcccag caatcacatt ctatcaaaaa taaacttaat tcaattcagt 180
ttggaaagtt ttaatcacaa agtctaaatt atcataaata gccattatca actgcatgcc 240
gaacattatc cactaatctt aaacgacctt ctttatgagc aattggacgt actttccata 300
ctgttggtat aggcacagca tcatcgctct ctatcatatc caagtctggg catcatcatt 360
tttcataaga gtgaatggca ctgattctaa gctgaatcct aaaccaaatt ttgaatatat 420
ttttaactca tcatgaaatg catttttttg atacattttt tctgggctgc tccaattct 480
ttaattgagt agcataagcn 500

```

<210> 1122

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1122

```

ttggattatt gnaagacaat tgcaattata tttcaacaac tggnttagtt accgaatata 60
atttatagga ttcataaaaa ctaattgngt tcaattatca ttcacaaat tcatataata 120
gcaaataaat tattcaataa aatatataaa attgatgttt ctgtaacata tatactataa 180
gataataata ggattgntag aaaactttta attaaagtga agtctatttc tttagtctt 240
taaggggctt gcatttagat caatttcaag actattctca ggactagaat tcaattggac 300
attattgatc tctgcacgat gttttccatc agagacagtc gttacgcttc tgtaaaatga 360
ggaccaagcg ggcatttgat tgggtgtagt gncgcattct gaacttccaa attgtggcng 420
ngnatcgcta ctcacgaagn atttcggtaa attcctgggg cattatctaa atcttctatt 480
ggtttagcat ggtacagttt 500

```

<210> 1123

<211> 415

<212> DNA

<213> Ctenocephalides felis

<400> 1123

```

tttttcnttt cttcaanaaa natnttttaa anaatatggg ggttttggtt tatggggggc 60
cttacatatt aacttttgat agcaatataa agtantcnaa nttatttcgn ggatcctacc 120
caattccttt attaaactgg natacttctt atactatccc attattttta ttaaataatac 180
acacaacttt aaaaactncc ttntgggttt atacaaactt taaatatcac tcctttttta 240
ccattaggat cgtaattaat ttntacctaa attatntgac ctggtaaagt tttacatata 300
tttacctttn nggcatataa attttttttag tttaaataaa tgctccagaa atatttttta 360
ttctntntta catatcaact taattcctag tttttcaaaa tnaatattac acagt      415

```

<210> 1124

<211> 382

<212> DNA

<213> Ctenocephalides felis

<400> 1124

```

tttttttttt ttttgnttt ttgganggct gggnaaaacc nttatttatg ggngcataga 60
nagaagggtg tgccaaaatt aaaaaacat tgganattta anttttttc tatattcaca 120
ttttcattat atttctaaac taatatcccc aaatttcaac taagaaatta aatcctttgc 180
cagtctgaga agataggagt aaagttacat tttccagcc aactcccat tgacaagagt 240
ggcatagcct ctttgccat ttacatattg gccaggcac gaacacagct aattgngcga 300
ttatttctcg atccactgg nggaaatgac acctctctag tagctttccg aaaaagtttc 360
cactcttgga ttggcttgac gg                                382

```

<210> 1125

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1125

```

ggcgggggct ctggaggacc caaaaccntt ttcctttttt aggggttcat ccttcttggg 60
ggctgggttt ggcgggggga ttttccgcc ttggccggcg ggnntttgag aattgggaat 120
cgttgggtga agnctggagt accgaaggga acagcccccac cacctcgtct ggttgntggg 180
aaatggatct tgatcctgga tctttcgtg aaagaattgg ggtctattat ggncttattc 240
ggtancccat ctacctctac acccaaataa aacaaaatta tttatgggat ttcaaagaat 300
acaacaagtc gccctggctc ccaaataccc ttaatatata tgcaagcagt gcagtctgtc 360
tattattttt gccactcaca cttaaaaata taatggctgg cccgtatttt atattatatt 420
ggttattcca gaaagcactg ttgtattgaa aaagatctgn aatcaacaca tctcatgtan 480
ggtactttnt ttgaaaagg      500

```

<210> 1126

<211> 301

<212> DNA

<213> Ctenocephalides felis

<400> 1126

```
tgtgaaccgg caaacattgt cagtaaagct gcactcatga atttgaggta ttgaacccag 60
gatactccgg caggcattgt aatagttata gttttaaatt tggattgtcg agggcaagtt 120
tttcctcaac tatggttttg gcttggcgac gcttgtaaac tttatagaag ttcgtttccc 180
cgacttgcca ctttatcata gagaattcta gcgcagcacc caatacaaag aatattggta 240
aaaaactata gaatccaaat ttacgtcgtc ctggccactt actcaaaaaa gagcgtaatg 300
t                                                                 301
```

<210> 1127

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1127

```
cgagaaaaaa acttttcttg gccccgattt aacccttggc gcctcanacc cctggagaaan 60
ctggtggnct aantctttta aagaaaaaaa attgncaaaa actgggttga ctggcgttga 120
aactggtaaa aacaacgacn aattaaatat aaaaaattgn gagaagaagc atatcgaaga 180
ggaaaatgaa agggacgatg ccccatgat atctgtgcaa aggacgtgct ggaagaaagt 240
tataagccta atggacctgg atcttctcaa ggatttgact tttcttaaca tagtggtcgg 300
agtcgcatta cctatccgcc agtatcaatt tcagcatgtt atttccattt ttttgcaag 360
aatcaactgg actaaaccga gctgatacag cgatgtgcat gtcagtctng ctggggcggg 420
cattggttct cggtaaactt tccacaatta cacaaatctg ggatttcttg cagatggcta 480
cctatcggac tgccgtctaa                                                                 500
```

<210> 1128

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1128

```
ttctcaataa ttaanacttc atggttttat tttttaatat gatgaagact gcagacgact 60
atcacatttt aattcacaat agtgaaaaaa aaatacgact cacaattata tgtatcttta 120
acactagtgt atgtaaaaaa aagatcacat aatttatatt tctggaaatg caacttgcatt 180
aacataaggc cacaatttca tatgaaattg aaagtaaaaa atacttaaca gttgaaaaca 240
actaaataat gaacatgaac aataggaact atattcgaca acaaaaaata ttctcaacaa 300
ttatttcaaa tttctaaaca gcaaaattac taggcaaatt acaaaaattg gntccattac 360
atattggatt taagtaatta agactaccgc tgcattctgcc gatggtttct ttcttgcattg 420
ccataagttt tcttgaggca gcattagcat tgnnttaagg ncttggtaca ctttgcctaa 480
gggggaaggt cttgggcctt                                                                 500
```

<210> 1129

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1129

```
aantaaancn cttttgaaa ataantgaaa actctttggc agccccngca aggtccaatt 60
ncggtgggtg ctttaagggt tgggaatcaa aaattggncc caaaagantt tacttcttga 120
accccgaaat gggaaaaaga acaccaaaga acctttcacc tttggaaatg ggcaaaagaa 180
agggattatt tgggncccggt gtggtanggt ggtccaaccc cttgacatgg ggaaactggg 240
tgaaacgtga aaatggtcat gggatttggc ttgatccata tgcctaaaga accatttggg 300
cattttaaga tatcaaagtc cccacgcttt gttgttactt gggcaaaacc aaatcaaccc 360
aaagggaggg tatttcacgg nccgtgtctt cttgcnactt ggacgtgggt gttttcaccg 420
gctttggaga acttcatcaa ttgaaactta ctacatgagc atgantggga caacaccttg 480
gatnggggtg ggnaaacttt                                     500
```

<210> 1130

<211> 121

<212> DNA

<213> Ctenocephalides felis

<400> 1130

```
aacgcaatct aatgcctaag ttctcaagtg gcgcaaaacc acgtacattc ttttttgtaa 60
gancacatgt atgttatatt ataaataaaa gagggaaatc taaccnnnnn aaaatnnnaa 120
a                                                                 121
```

<210> 1131

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1131

```
aattcaccnc tntttaangg gcctaataat tatctccttt tttagagcct ggggataatt 60
tacctcttaa ttttggggcc ccttttagctt taattggctc aaagctcctg ccatgtcaga 120
aaatcttcct ggtaaaaaaa atatggaaac tggtaatttt atgtcgattt gnttgggggt 180
tggtatcata tattacacgt naaacagaca aactctgnga tattatgaag gggatatttt 240
ttataatatg cttagataaa tctttattac tccattata aaagtttggt tgttcaacaa 300
aactttcaaa ccagcttgcc gcttttaggt ttaccnttta aaaaaaatat acccctttta 360
ttaatcactg ggggtattta actttaatgg attattaatc tncatataca tttttagact 420
ttgcttcact ttagtagggg tttatccctt tccatcnctn tnttgcgggg gntgaacttt 480
tatcatttnt tccttcgggg                                     500
```

<210> 1132

<211> 129

<212> DNA

<213> Ctenocephalides felis

<400> 1132


```

aatttggttt ttnggagcct ctttttanag cccattttcca gaacattttt tagtaacctg 60
gtgggaaaac tgatcgacac cacttntgaa ttttgtaaaa aacatttgga aatccctctt 120
acttccggg                                     129

```

<210> 1133

<211> 398

<212> DNA

<213> *Ctenocephalides felis*

<400> 1133

```

taatcttaaa ccttaatat gggtttattac cgaaaatttc tcaaataata taaccattca 60
acttattaac cgtcacttat taaacttttg ntcattcaatt ggaatgtcta cagaacacca 120
gcggtgtttta taatgaatac aaaaacgcgg aacagacaaa aataaatcta aattgcatta 180
ttatgtttat aatgtatctt agaacatcaa agatataaaa cttttctaaa tattaattg 240
aaaaaatatg aatagccatg atataagggt aaatagatgt ccaaaaaaaaa cgtttcattt 300
aagaaagtca tatgagtaga ttagatttta aatttgtgca cagaatttat gactcatgat 360
ctttttaatc gctattcata aaataaacgg naaatgt                                     398

```

<210> 1134

<211> 327

<212> DNA

<213> *Ctenocephalides felis*

<400> 1134

```

attgttctct tacaaatcta aaaattagaa ctaatctatg atataaataa aaaataggca 60
gcatacttat acacaatgta tctaatacaa tatgtattac ttcacgattg ttgtcatata 120
aacttcaata ccagaattt tttttgcagt tgttcaaaat tacaaattgt ctgcacaatc 180
catagatcgg agtgttttcg gaatggctct tttccactt agattccttt acgtaaacac 240
aacacaaagc gtgtggagca aaagttttcg ataatactgc attatattga atatatctgn 300
taatgttcca aatcatgtag gttgcag                                     327

```

<210> 1135

<211> 357

<212> DNA

<213> *Ctenocephalides felis*

<400> 1135

```

cacacagtca gtgatagagt tacgcgttcg ttccgcactt aaccttacga atacttagat 60
tttctccaag aaaatctttt atctaagaag aaaccaaatt caagttgatg cattattctc 120
cggaattggt agagaatctg aacaacggtt cgttgttctt cagctacgaa tacaaccggc 180
actgtaaagg gtctttgaag aaactggctc gaaagctgct ccacgttagg acggccgttc 240
tgaagattgg gaacaagtna agattaccag gaaaggggaa cgatgatgac cangaacaga 300
athttaccga tnttaccac gnnttnngac atatgttnac atattatata aatatat 357

```

<210> 1136

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1136

```

tttttttttt ttttttttgn tttggaatac ataatttggc ttacatttat tcttttataa 60
aattacataa aatatcttta ggaataacaa aaagggattt tcatatgcac atgtgcatat 120
aaataccatg catatatgta tatgcatgtt aacagaaaaa ttggnaatta gttaattagt 180
tcaactgggac attatttttt cccacagttt gaaagaggca cttcatttcc taaaaccgga 240
aagngatttt caaatgagtg ggcaacacat gatgcttta atcggcacgc aaaagtcttg 300
atgacatgtg gcacacatct caatcttgca tttgattttt cactttggat aaaaatatag 360
tataattcct gntgcttgca gatatcgggc agtaagcaag ccactctggg aagatttcat 420
caaaatcttg cccaagcttt atgccatgac ataaatgatg cctgataaaa tccttcctaa 480
tattggtcct cagaagctgc                                     500

```

<210> 1137

<211> 378

<212> DNA

<213> Ctenocephalides felis

<400> 1137

```

ttgaaattta taaatatata ttttcataat ctatcatttt ataattctta aaattattga 60
gctacattat caaataattt ctctgcaggt aacttccaat gttcaaacac ataaggtaaa 120
cgatcttttt gttcagtgct ccaatgatgt attctgcatt taacatctac tttttcttta 180
ttattaattg ttacaacaac attgaactct ttattttgca agttcatatc cggacccttg 240
ataggctggt cgggtatttt tattgcttct aatgggcact caattccacc ttacgcaga 300
gctatttgaa tgtgccatgg ctcgataacc caaggctctt ctttgttcat tactacggca 360
aatacatggt tggagagt                                     378

```

<210> 1138

<211> 264

<212> DNA

<213> Ctenocephalides felis

<400> 1138

```

acgtggtaga aattctagaa gttgccaatt tcttctgtcg actagttcga atgggtgtgt 60
ggttacccat tctgatcat actggttcag aagataacaa ccgacagtca tgctcccaa 120
aaagatcaat ccaatggctc cgatggagaa aaatcttcct ttacatttgc agctgggttc 180
agtatacaaa tattgacctt ctatatcttc tgattttttt aaaagtgggt gttcttggtt 240
gccttctgat ggtggttggt ttgt                                     264

```

<210> 1139

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1139

```
gtttttgtta ttttcggaaa cttggattaa taatgaagaa cgaattaata ttcagaacta 60
ttactgcgtt actcaatata aacgatcgga ctcaagagca ggtggtgtag ctgtctaata 120
tctattattc atgttcagat actcttcata atgcgactcc tatgcagttt cttgcgccaa 180
cgatattact ggatatttct aatgaaatta cacaagtagg tgatattaca cacacagaat 240
caaacattga ttatagtcgt cctttacatt tctcccaata aaaacatata aaatattatt 300
aaattttctt atcagcagtt acttcatttt tcttatgagg gtgcaaaact tttaaacact 360
aatcacaacg agataccatt aattcttgct ggagatttca atgtcaattt tcgttcagaa 420
gaatctcaac cattaattga ttttttaaata aataaattta atttaacaat gaataattct 480
ccatttgaat caaccaca 498
```

<210> 1140

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1140

```
taccgtcgtt gtttattgaa tttttagtta tttaatcaga agtaatttaa gaaatatata 60
caaaaattga attttatcag aaaacatata ccatttcata acaagtttta tcgcgttcga 120
caattttcat ataatagaatt aataaatatt ttcaaaatga catcagaaat ttttctctta 180
tcacctgtcg atcgcaatta aaaaaaactt gttagccata atattgcaac agaggaattt 240
atccagcaca tgcttattta taaagatcag cttatcaata acatgatata tgaaaatata 300
cttacctaaa tgataatcta ttgtttaaat gcatttttat atttcaaaat tcttatttaa 360
tattttcgtt ttcgtatagc agataaaaatc ttctggaaat ttgcaaaatg gaatcgatca 420
aaaaatcgtt gntttacagg gaatgcacag caattaatgc cattattaat ggaaatgatc 480
ctatttaagc aggaacac 498
```

<210> 1141

<211> 289

<212> DNA

<213> Ctenocephalides felis

<400> 1141

```
catancaatt atgaaatgga ttcatgatat atatatatat ttatcttcaa aacatagaca 60
ttcaaaacta tttgtttctca ttaataagat tacattcagt caagaaaaac atgccaccga 120
gttttagctt tttcaacaaa atataatttt tttttattgt taaaaaaca ctgccatata 180
aatacaaatt caaacacatt cattacaaca ttatgagaat aagtttagga ttttaaccaga 240
aataaattaa taatggcgaa caaatagtaa taaataactt aaaatcagt 289
```

<210> 1142

<211> 484

<212> DNA

<213> Ctenocephalides felis

<400> 1142

```

tttttttttt tttttttttt cggttttacaa aattttattta ttcgtcagaa aagaaattta 60
taaattttact tttttgataa aatctgngtt tgtaaaaaag ngttagtgtt tattcaatca 120
tacaggnaat taattctgtt ttttttcagt aaccttttct taaaactttc taaaactttt 180
caatttttaa cattttcaat atttttgntac tcattttattt ttatcatttc attttgatta 240
ttggcatatt tctatatatt attttttcaa caatgttatt aatttaaaaa atccatcatc 300
ttataatttt cctaaacata ttgntngctt aaatcttattc aaaatcatgt ttcttgacag 360
atgtcctgaa gttggaacat acctagtcc gaaacgcgat aataaataaa taaagaaatg 420
ggtnttgatt attttattac tttttggatt ctttggcgaa gctcaacaat atatatatat 480
atct

```

<210> 1143

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 1143

```

aaaaatttcg aaacattttac agttacttaa gaataaattt acttatgagt aaacatagtt 60
caaaatattt aatgtttattt ataattataa aataattgat ttttagccaa tcgtcgaaat 120
aaaaaaagac aaataaataa aaatatnctt tataaaatac gttttgacac ggattgtgtg 180
tcatctatca gcaatttttg ttaaatagta tctaaaataa taattacaaa gtttaaaaaa 240
taaaataaaa attttatatt taaaataagg natacatacc aactagaaa aaaacatttt 300
ttaacttccc gtaaggagtt tatgtnatga accgaaaatc gaaaatgaaa ttttttgcat 360
ttctcgacgt cttgaagggtt tctggacatt ttggcatacc tcagaaaaaa tggatgtgtg 420
tgtgtgtgtg tgttttgtat gccgcatttt tagtcaacgt tttcgggcgc acagatcaac 480
cgatttgaat gggttaaa

```

<210> 1144

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1144

```

ttttntnnnn tttttntttt nttttgnann ntttaaccag ccatntcggc aagccatggn 60
ntacagcaaa tgagtaaaca cacagncaag gcatggaaac atattatgtn gctgngtgtn 120
gcatctcgaa taaacccaac gattggaccc aaagccaatg tcattattcc ttgcaagaac 180
atgaacagcc cgtatgccga aggaaatctc tcctgtgaaa aatattcggc aaatactaaa 240
ggtaaaggca catgaatcca tgtgcggaag aatcccaaaa aacttgatat tataagcatc 300
attgtaaaagt cagtcacgta caagaacact atacgtgcga aaactgagaa taaagctccc 360
gctaaaaata ctgttctact gctgacttta acacaagcag tcattcctgc caaaaacatc 420
cttgatgaca aatctgcagc tgctgcagca gacacacaaa ttgctgtatc agttttgcca 480
gcctaatagca aacagataca

```

<210> 1145

<211> 280

<212> DNA

<213> Ctenocephalides felis

<400> 1145

```

gtttaagccn ttaggtttaa gncctngtt agcgcggtcg cgggccgggg tacatttaat 60
gntacacctt gagggaatga cgcttgcaac agccttagaa gcacccggat attttgtaga 120
aggtaaata caaatctgaa catttctttc atagacgcaa agctggtatt cggtttcaat 180
agccgaactc tttggtttta atttttgaat cttaaagtat tgcccaggcg tagcccaccc 240
atcattaata tctaattcta atgattttgc aatacgatgt 280

```

<210> 1146

<211> 287

<212> DNA

<213> Ctenocephalides felis

<400> 1146

```

tttactggc ctaccaaatt tactacgcca cctagtggcg gccaatgtc cttcatattc 60
ctctttgatg gtttttgact caaattcttg caaagcacac atcaaagntt ttctttatc 120
ggatgtagt ctcaagggga gtcgattgc ttgttcctta cttatttttc catttgaagg 180
gmatgatgag ngattaacaa gactgggagg tattcgntc tcacantttg gtgntataat 240
agcagcatgt aaaaatttgg aacgactgtg ctgggaaaga acacaat 287

```

<210> 1147

<211> 484

<212> DNA

<213> Ctenocephalides felis

<400> 1147

```

ttgctagttg accatccatc agcattattg agattgtttt gaaaaaaaaa aaaaagtcaa 60
tttaggttaa tttataatth ttgctcttta acaaattgtt tatttatatt gtagtatttg 120
ttttaaatat aacttgtgcc agattcttct tttctaaaac gaattgatat aattttatag 180
atatatttag aaatattgnt tttggcatg gagggtaaaa gtaattgcgt ttgaatggaa 240
aaaatgggtc tttgtatata tggaacttga tttttatgtt ttgtgacct aaaaagaaat 300
cttcctgaga gaatcaatth cttctttgct ccacaaatgt aacacacatc acacagggtc 360
tgtacaaaca tcgggaaata tatgactata tatatttcta tcattttcat actttttata 420
ctaaacatth atatttggnn aagaatgnat gatttattat tatataaatg ctaaaatatt 480
tatg 484

```

<210> 1148

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1148

```

atattttgta tagtttcttt tgttgaatac ttcataata tattaatata atttaggttt 60
cctctcgcaa gttcctgtgt cgagctttg agtagcttgg ttaaatactg ttccaatcgg 120
acattgatca ggaactggct ctcccttagg acgtaaacac gtgaagaact tccggcatgt 180
tgcgtcgttc ttgaaagcaa attttccacg tgctcggcat tgcccagacac aggtttcgct 240
ccttggggaa aactcggcgg gttcttcgca ttgcaatacg gttcctcttc cggccataca 300
tacgacgtac aatgatttat caccaatgta cggaagcacc ttaggctgtg caggacatgt 360
aactgtatag cattttgtgc ccagagccat aggtccgcaa ttatgacgta acggatcata 420
tgcaaaattt gcggggcaat aatattgggt tcctatacta ttttcgtcac aataataata 480
gctttgacaa tcatttat

```

<210> 1149

<211> 306

<212> DNA

<213> *Ctenocephalides felis*

<400> 1149

```

taaaattggt gagcataaaa tacttccaaa gtctactctc caatgtaatc tacaggatca 60
acattcattt ataaagattt aatgtttcga gtgttcgta taatagaaca cctataaaaa 120
cttttttttg atattcgtgt tgatactata taaattttta aaatcttatt ttattaattc 180
actcactact ttagcacaga tttaatactg caaaaatttc aatacaaatt tattatatac 240
agatacaaca atccagcttg tcactactct cactctaat aactacatga ctatcaacct 300
ctctgt

```

<210> 1150

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1150

```

ctcaattaaa acaaattttg tgctcataac taaagatttt tctggagttg cggncattta 60
gctcatagaa ataaattatt gacagcaatt ttgttcaatt atatgtcaaa aaaattatgt 120
ttctatctaa tcattattga atgttaatgt aaatggntta attttttaat gcatgaatat 180
ttccaataaa acatattttt gaatgtgaag atagnttatg gcatataaat tggaccatta 240
tttctatggn caatatttga aaatattaaa ataattttta tgcttattat nctgnaaact 300
attaagaacn ttntctgggc cngaatatnc ttttnaaaaa catttggtta ttcnaaatta 360
ttaagaatna aaacgtgttg ntttcagacn tgaaaggtag natttctaac ntctggnttg 420
gcacngaacn ataatttgnt taaggccac atttaaaatc ntnacaaaac ntctcacn 480
nantttttta ttattcatca

```

<210> 1151

<211> 349

<212> DNA

<213> *Ctenocephalides felis*

<400> 1151

```

agaaacagat agtagtcaaa tgagtttccc cctgcaatag tcgccagaac gaggggaaat 60
atatgcttag ctattaaaat attcattata attaaaagg tttgttaact ttattttaag 120
agttaaatta gaagtggctt cagaccttcg taattttata aacactatga tctgtaagca 180
taaatacagta gtaaattggtt tactaaactt cctaaatgca caaacaattg ctcaaaaata 240
tcattgttaa agcattgaac tatgtctaaa atattgcaaa agaaattaac atattttaaa 300
tattactaag aacacatgt attctgcac agatgtttat cttttttgt 349

```

<210> 1152

<211> 396

<212> DNA

<213> *Ctenocephalides felis*

<400> 1152

```

atggattcat gtgcctttac ctttagtatt tgccgaatat ttttcacagg agagatttcc 60
ttcagcatac ggactgttca tgttcttgca aggaataatg acattggctt tgggtccaat 120
tggttgattt attcgagatg caacacacag ctacataata tgtttccatg ccttgactgt 180
gtgtttactc atttgctgta taccatggct tgccgagatg gcgtgggttaa aaatgaaaaa 240
taagaaataa atttaagaat taagttaata ttaatggaaa aattatatat agtttatgtg 300
aattttatca cacgtgttat atatctttat aaaagtaatt tataaaggat tgtcacagaa 360
aatataaatg acaaaaaaaaa tgttttnnaa aaaaaa 396

```

<210> 1153

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1153

```

tntttttttt tttttttttt ttttttcaag cangtcatca aaaaatttta ttaaatttcg 60
ggnatngnca tantaaatat gtaatatcac ctcaatttca gntataaaaa taatagccaa 120
ctgttatcat tcanaagnat tatttngcct tctgactcct ttaaactctg ttcttgactt 180
aaacgttggt ctgnagcccg ttcccatgca tattnaaatg gaaanactaa ngggttattt 240
tcctctgggc cgttngcgcc atctcgacct tatgggcnng agntcccttc atatgcaatc 300
gntctaatat ggnggggnat gaacaacgga atcaaaaagaa gttatntacg agaatttttc 360
cttatcagat ttcacatccg ggcgcccttt tgntgaaaaa agaacttatg tttgccaatc 420
tctnttaaaa actcaaagca cttgatntt ctgggccgat tgntgggcac atctattaac 480
caacatttat ttttgcctc 500

```

<210> 1154

<211> 314

<212> DNA

<213> *Ctenocephalides felis*

<400> 1154

```

aaatatttgg tttctgttta taaaagacta atacaaacca tttaatcatt cattnnaaaa 60
taaaacattc ataattttta agttgncagg tgaaaaactaa ttgcataatt atttaactaa 120

```

```

attattgact gttttatttt tcgtttgatt ttgtgctgaa atgatgcaaa aagaataatt 180
ttgagcaaaa cctacctctt ttttaatttg aaactataga ggnattatt aatgnttcca 240
attccataga atgtatattt gtagattagt aaaggtaatt aatgccnaaa aaaaaaaaaa 300
aaaaaaaaa aaaa 314

```

<210> 1155

<211> 352

<212> DNA

<213> *Ctenocephalides felis*

<400> 1155

```

atggctacat taaaaatcaa acgattcaat gttttttatg aattgagaaa acaatttata 60
taaaaacgat taactttcat tcagaagttt ttgttaatat aacaatagta tctgaaaaat 120
attaaaaaca tctgtcaaaa atatgcaaag taatttcatt caattataaa aagatttttc 180
aataatttac aaaaattaaa aacatttttg aaaagatatc aatatcagca catgttaaatt 240
agtaagagac aagaacatg acctttaaaa ttaatccgt gttgcatata caacaatgta 300
ttttaaactg tgattttggc aaccatcact tcattttattg catacgtaat gt 352

```

<210> 1156

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1156

```

ctantnagcc cttactnac ncttgannn ccgcggncgt ccggcgggtcc tggncaaatt 60
ggagttattc gatgtcttat gtagagnatt ttgaagnggg taaataaata atacatcggc 120
tcgcgagntt gttaaagttt gattaaataa cttagtgtac attttcaagt tattgaatta 180
caacactttg aaagcattaa gtgcctttgt tagattttta caatatcaac ataataaata 240
attatattaa aaaattttatt ttaattcact catttttaac aaaataaatt tcatatacaa 300
tatttaataa atcctgacaa aattgtattt aatttacttg atatttttaa taataaatgt 360
tttagttaga atattaagga aacgtataca ttaaaataaa atgatatgtt cttcaccttt 420
atcttttcaa taatacgaaa ttcgaattag tatggcttcc gcttaaatta aatatgtttg 480
ctaaactgcc aatcaagaaa 500

```

<210> 1157

<211> 92

<212> DNA

<213> *Ctenocephalides felis*

<400> 1157

```

caaacgaatt acaacaagtg gaaaccactg taataacaaa cgaaaagtgc tacgaattgn 60
ctcaattcgn tgaaccaact tcgcaaatat gt 92

```

<210> 1158

<211> 495

<212> DNA

<213> Ctenocephalides felis

<400> 1158

```

tttttttttt tttttnttt ttcaagggaa aagactttat naaaatangg ngattttata 60
ntcngtatnc aacnctgatt acnantgttc cattactttt ataaaatntn agaaacaatt 120
nagcctngna tnaacaattt aacttcaact ttgggagcag tttcaanagc agccaacaaa 180
tngtctacat tacagcaata tgngtaccct ctagttaaat tagcaaaata ggaatcttca 240
aatccagctt ntttgcagan gtccttgagc agtanatctt tatgaggaaac tttntntgca 300
taaggattat tgagggtaan aaaagcaang ccttctccag tttttggcga tngtactatt 360
ttccaattcc atttgggtat ccaaagtgtt ccgtntttgg caataaacat ttttacttcg 420
ttgttattgc atcaggcaga gttaggatat natggacacc tgaatagacg gncaaattctt 480
cagctntgga agaan 495

```

<210> 1159

<211> 148

<212> DNA

<213> Ctenocephalides felis

<400> 1159

```

atgaaattat gtgttttgaa atttttccga ttttgtaaata aagacatgct tttgttttga 60
tattttaaat gtgttcattg ggattactgg ctttttttac aaactcatat gcttgatagc 120
catatacata cacataattt gcacatgt 148

```

<210> 1160

<211> 339

<212> DNA

<213> Ctenocephalides felis

<400> 1160

```

cattctagag tattttggga aagaagattg ttcgataaat caacaatttt agacaaacga 60
gaaattaagt aatattataa aaatagatat caatctttca tcttactaat ttgatattga 120
taaaaaacga agcaatacat aggggtgtgtg gttgaggcgt ttcttttttt gttttatagt 180
agatgaattc taaaacatcc agaaaaataa tatatataaa tcagttaaaa aaatgttttt 240
tttcgcctat tcagtatcac aatatcccaa caatgcaata tatggttggc acccattcaa 300
aactaaagta tgacaagacg catagccaat tgaaaatgt 339

```

<210> 1161

<211> 212

<212> DNA

<213> Ctenocephalides felis

<400> 1161

```

aagctcttta caccatcatc aacttttgtt ttgcagatgt aatagaaatg atcatctcct 60

```

ggccatgggc cgttttctcc agctctttgg cagtctactg cgagattctt gcaaattctcg 120
 gaatccaagc ttgaagtgcg cgtaccagtt acgacatcga atgcattttt accaacgcat 180
 tcttttaata ttccatcagc tcctttttca gt 212

<210> 1162

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 1162

ttaaaacaaa gaaaattagt tcaaatatctt ttcaattctt agtttggtg tgcatatatt 60
 gattatttag aaatctttat aaacaatagg acacttacat ttcaaaaata ggtgttaccg 120
 aataaattat gatctctttc actacatata ttacaatcaa catttattaa ataagtgtg 180
 aatttattta ttgngcaa ataatatgc tntncatggt tagnaataat ttattaattt 240
 aattgnataa tttgntgggt taccncacat ttagctact ggtgagctag gcataatgng 300
 aaanggatat cttaattttt ttgngatcaa agctttcatt ttattaataa aggaanttat 360
 taataaatat gngccanttt tcantattgg gatgctantt atgccnatga tatggtgnga 420
 tcatnatatt tgaataatcg attttttgat cctnttgngc gatatttacc aacnntaatg 480
 ttttaagctn taaagaat 498

<210> 1163

<211> 360

<212> DNA

<213> *Ctenocephalides felis*

<400> 1163

tccnaagccc ttgtnggctn catttngntt aacgggggcn ncggcggggg actaaaattg 60
 ntgagcataa aatacttcca aaggctactc tncnatggaa tctacaggat caacattcat 120
 ttataaagat ttaatgggtc gagggnttng tatnatanaa cncctatnaa aacttttttt 180
 tgntantcgg ggtgntacta tataaanttt taaaaactta ttttattaat tcatcatac 240
 ttttagcacc anaattta atctgcgaaa tttcaatata natttatttt atacagatac 300
 ancaatccag cttgnggcta ctctactct naataactac atgantatta ancncctctgt 360

<210> 1164

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1164

cgagtatgaa tatgattcaa agggaatcaa aaataacaaa gataaagttt cattaaaaga 60
 agctattttta ctcatggaga aaatgcaaaa taaaatggat gattccagca ctgtgctcag 120
 cgatctggac gatgatcttt tggaagctga aattttgcag tctgcaaatg caggaagtca 180
 tgaaagcatt ttcaaagggt gctatcacta cgtgtggcct atgttgcttc tccttttaat 240
 tgttcttacc gttttgtttg tcgttgga aaatagttcac atttgaccg ataaccgaca 300
 acgttcactc aaatatcaga atataataac tgctgtgaat cacaagattg taaagaagaa 360

ggattgtgga ttagtatatc aacctctatc agaagaaatc agatgtcccc aacgccaata 420
 gtgacacgct atcaagctat ttgagcagcc gtttcatcat gaaaaaatac ccccgacaag 480
 tgtactttaa acgtaattc 500

<210> 1165

<211> 495

<212> DNA

<213> Ctenocephalides felis

<400> 1165

tttttttttn ctnttttttn gatgaattaa cattagtcaa tttttttatt nnaaaaaata 60
 taatatgaga tttccgatta caaattatct ttgttttttc tttgatgttg atggttttatt 120
 ggcttttaaat ttagatatta ttgnagttaa caaaacaaga ctgaatccta tagttgtaaa 180
 tgcgataaca ccaaataatta cnatagatca acgatggngt attcatttat gagtnggta 240
 aatttatcaa cagcatcacg aatcatttcc actaccagg aaactagatc atcaaatggt 300
 gcttttggtg gtggcacagg ttcagcttta gtatttttgt caagcccnnt tttttttttt 360
 tttttttttt ttgcttgngg gggtattaga ntatggattt gtcactata aaacnaatag 420
 ttaanaaaaa ttttttaagg tcaatttcca cgaagcaatt ttncacaaca tcattaattt 480
 ttccaatctg gattc 495

<210> 1166

<211> 419

<212> DNA

<213> Ctenocephalides felis

<400> 1166

cagcaccatt agcacaaca gacaaccggc atgagttatc caatcgcttg cgattctatg 60
 ctctggtaaa aaatataagt cgagaagttg ccatatgctt ctccaaacat tgacagttcc 120
 aatgaaacta aaaaatagaa ataagtcagc aactaaaact ctccaaaac cttccaaacg 180
 agcatatgn catcgcatga taggctgaag actgaatgtg agtattacaa tcccgtagcc 240
 aagtgaagt gaagccagag cactaagcga tggatcatct ggaaatataa tattgtccaa 300
 tatcacccaa gctcccctnc acacgacaac caccaaggat ccaacgatga atacggaaaa 360
 taagcaatcg attaccgtaa agccatttct tntgatgctc gattctttaa aatatgtag 419

<210> 1167

<211> 293

<212> DNA

<213> Ctenocephalides felis

<400> 1167

tagcccttca atcattatct ttatttaata attgggcaga tttgntagaa caaaaataat 60
 gattgttagg gctataaaat ctgcacaatt attaaataaa aaaatattgg gaaaattttc 120
 tatatcatgg gcaatttatt acagaagagc gaagttaagc atgagggntt tatcaattat 180
 tggctctataa attataatag aaatgaaaaa aattgttaga tataaagaaa tgtttactgt 240
 aagatttttag caagtgttga gttgaaaatg aagaatatgc ttacaaaatt ggt 293

<210> 1168

<211> 109

<212> DNA

<213> Ctenocephalides felis

<400> 1168

```

caatcaagac ctttggaag atttttggg cannttaggt tggcccaaat ccaagaggaa 60
attcaacgtt ggccaagcgc ctttncctac atcagcgggc aaatctggt 109

```

<210> 1169

<211> 438

<212> DNA

<213> Ctenocephalides felis

<400> 1169

```

tgagaataaa gctcccgtc aaaatactgt tctactgctg actttaacac aagcagtcac 60
tcctgccaaa aacatccttg atgacaaatc tgcagcagct gcggcagata cacaaattgc 120
tgtatcagtc tttgaccagc ctaatgcaaa cagatacatt gtttgaatag cagaaaaatg 180
ctatgtcggg gtatagtgc aatgtcactc caataaccat attacataa atccagtctt 240
ttaacaaagt caaatccaaa aagtcaacga taacttgcaa tttcccctg gatttcttct 300
ctaccggtgc agtagtgcta tctactgaca tgactgctcc agtccaatta cctaaactag 360
aaatggaaga tccacgtctt ctcattctat gttcttcata ttgaagcatc ttaactggag 420
ttacgccttc tatatncc 438

```

<210> 1170

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1170

```

ttttttataa atngttttaa aattacatat tattgaacaa aaaataaact gtagtaaatt 60
aaaaacaaga tccaaatttc caaagcaatt tgtaaatcaa taactgagaa acgactcgtc 120
gattattgac aaaatttaat cagcacgatt ttcaaataa aaactttttt aatggttttt 180
gaattttcaa aatcgattca caaatgtaag ctataacgtg aacaaaaaat ttgagatttt 240
tttgaaaatt ctaaagaaac ggctcggccg atcatgaggc aaaactaacc agcacgagtg 300
cttatcgaat ttgcgaattt caacgacttt tcagatagga ttttgcatc ttaagaaaac 360
gtcgactaaa gatgaaattt agactcacgt aaaaaagtgc tgctcatttt tttggaaatt 420
tttatatttt tctgttgatt agaaacagct tggccgtcgc gcacaaaact aaaagacgct 480
agtaattatc tagtacatca 500

```

<210> 1171

<211> 220

<212> DNA

<213> Ctenocephalides felis

<400> 1171

```
tctcaaggtc tggtagagcg ttccacaaaa attctagaaa tcagaacaat gcttccaaaa 60
tacaaataca cgtcctacaa tatcaccatt caacacctcc aacaatttta ctatatcatt 120
tactcctcaa aattcgtcct agtaggctta taaacaccga catccttgtc ctccgaatgg 180
tagcccaagg aggccaattc gtccataacc tcaacattgt 220
```

<210> 1172

<211> 284

<212> DNA

<213> Ctenocephalides felis

<400> 1172

```
aataatttta actatgtctt attatatccc tttgtgcata taggggntaa actgactaac 60
aagtatcact tttttttata aatatccaag tatcatacga cacacgttta taacgatttc 120
ataaattaaa tatcactggt tgtttttgta caaaggcact tttgtcttc aagcacacac 180
cgaggcttta aactaccaat gtaatatgtg actagaataa ttttaattgt ttcagcgctc 240
actgaaggct ttaagcaact tcgtgccaaa cagactctct gtcg 284
```

<210> 1173

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1173

```
ctaagatgta tatattctac acatatgtgc atataatatt gtcaagtaat gtcattgtgat 60
atatctccaa aaggcgtaaa cgctggaaga aaactgagta aactagaaaa ccattgatgt 120
gtggaagatc tagtccaaga agctttttta tggataaaaa tggaaacaaa aatgtaaaaa 180
tatagttgca attataataa tcatatcatt agatatgtag cgaatatgag atagattctt 240
tttaaaactt ttataaattt atttatatat aaaaattctc aatataaata gtatactcaa 300
atatatttat atgattttaa aatattgaag tttttataac caatattttt cagtaaaatt 360
ttcagtaaat gatgattttt ttataaaaag tgcgtattaa ttaaaataat ataaaaaaaa 420
aagattttta ataataataa tactattaaa tatatgatca tttttatgaa gtattaattt 480
tcttataaat tattagataa 500
```

<210> 1174

<211> 353

<212> DNA

<213> Ctenocephalides felis

<400> 1174

```
cttcattttt tcaatatgca nttcgatttt aatctaaggg aaaaaatntn cnggtgtngg 60
ttaanattta attnggaata aaattctgtg tattatattt agtttttttt aaattatcat 120
ttaatnttaa ttattgntaa aaatatnatn cgattaatta aaataatatt aaacataaat 180
```

```

ttcattgntt tttttangaa actaaattgg gaaccttttt atatcttatt atcnacgcta 240
aaaaaaatac atttttttta gtattttacc gtttcatatt atattaanaa aaacttttag 300
ttaatactaa ttattataaa aataactaaa agttnnacia aaatactgga agt 353

```

<210> 1175

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1175

```

tttgtanna aagatacagg ctgtttgttt atattgcata ggtatacaag tgaagcaata 60
tttgaacat tgaaaaaatc acaaattggg tatataattt acagnaaaaa tacaatatag 120
ttcagaattc ataaattaat atttntaca agaaacaatt actttaggng cttataata 180
agtttcttaa tgaggcatga agatataaaa ttaaataaaa atgatcatag ngnaaaatac 240
aaattaaata gttcacacaa ataaatagtt agcaaagtca tctacgctat atataccctt 300
aatactcgta tattcttcta gtagtaattt tttcactaat ttcacagnct tcaagattat 360
tccaaaagat ttacgcagaa ccatctgatg tgagcgaatt tgatgtagag ctcagtcgat 420
ctccgtattt attaagaagg ctaatatgac accattcgtn cagccaaaac caagctggcc 480
tcatattntc cgcatttctg 500

```

<210> 1176

<211> 299

<212> DNA

<213> *Ctenocephalides felis*

<400> 1176

```

ttggcaatga aatacagttg ggaaaggact aaatcggtt cggtgctaag gcttaagctc 60
tanaaattct ttccattttt gggatttttc cgggggacaa aggcagaaaa acttggtaaa 120
ttcaccgggg aatttttaaat ggtagaagca aaacatccaa ctcttggaac ccggagatac 180
caccacctcc agaaaatacg tctgcaggta acgtcattgt tccacaaacg gaaactgatt 240
taaattattca aaaatcataa aagcgggtcat agntttatta atgagttgga aataattgt 299

```

<210> 1177

<211> 230

<212> DNA

<213> *Ctenocephalides felis*

<400> 1177

```

aggtgagcgt ttggtgaatc ctgaagcatn ctgttcatag caacagctga ttgggatatc 60
agcctgcgct gtccggactg gaccatggtg ctcttgacga gcaatcctac acatctcatn 120
gccataacga aatacgaaaa ttattagtga accttcgaaa aatcaggaac cccgttgtaa 180
atgatagatg gacacacaca acgcgcgttt gaaatgaccg acactgtngt 230

```

<210> 1178

<211> 318
 <212> DNA
 <213> Ctenocephalides felis

<400> 1178
 ggcaacanc t tgccttggg caccggctgc tgctttggca gcataactcc tgctgttcga 60
 taaaatcgat gcgattttac ccgattctgt tttgctcagg gttcgcaaag tggaattgat 120
 tacggagtgc atcttgtaat aaaatgtata gccagttgag ttgaattaaa ttgatctcac 180
 ctgtaagcta ctgaacgaag aatattaaat cctttatgag cactgatagt attttttggg 240
 gtgtgcttac gtaacttctg cacttttcag tttcattgct tgnaacattt tcttgaggag 300
 cgggtaattc ggcattgt 318

<210> 1179
 <211> 329
 <212> DNA
 <213> Ctenocephalides felis

<400> 1179
 tgtagccacc gcgatacgaa tcggaacgcc catgcttata atccatgttt ctggatagct 60
 gactcacaaa ctaacttcaa tggaacccca actcacacgt caaggatttt gattaaatac 120
 acgtgcaaat ttgaataatc aaaattaaac ttgtcttata ataaatgttc cacacatttg 180
 ncctnctgca tntgnaggta tgatgatatt gaactggcac gactgcactt aaaatagttg 240
 cattataata ttaattcggt gcacttgaaa atttaatgct gaaatgncga aatagtccac 300
 acagcctaca agcacgtaac acacgtnaa 329

<210> 1180
 <211> 190
 <212> DNA
 <213> Ctenocephalides felis

<400> 1180
 ttatattana gggncgtggt gaggttaactg ncggaagaaga aaatttantic tttgagagtg 60
 gtccattttac ttatttttggc cttcaagcga ttacacaaaa cattggagtt gccgattctg 120
 ngaaaggatc tatgcaatcg ttaaataatag atggtatatt aaaaaacagt tttataccag 180
 actatacagt 190

<210> 1181
 <211> 305
 <212> DNA
 <213> Ctenocephalides felis

<400> 1181
 cgttacttcc aaccattttt gcaataattt taactatgtc ttattatata cctttgtgca 60
 tatagggttt aaactgacta acaagtatca ctttttttta taaatatcca agtatcatat 120
 gacacacggt tataacgatt tcataaatta aatatcactg nttgtttttg tacaaggga 180

ctttttgtct tcaagcacac acgaggcttt aaactaccaa tgtaatatTT gactagaata 240
 attttaattg tttcagcgtc cactgaaggc ttttaagcaac ttcgtgccaa acagactctt 300
 tgtcg 305

<210> 1182

<211> 58

<212> DNA

<213> Ctenocephalides felis

<400> 1182

tacgatttag ccgaggcaaa taaaaattct attgnaaacc canagtggaa gcaaatgt 58

<210> 1183

<211> 383

<212> DNA

<213> Ctenocephalides felis

<400> 1183

agngggctaa tataggatct ttataattac cgnagggcc aattagnnga caaaatnnaa 60
 ctgagatttg taataaagat tgcaaacatt ttcaaaaaaa aaaaaaaat tgaaaatttt 120
 acgatttttt tcggaggagg gtaattttca atatacgggt tcacagaggg gaaaggggat 180
 ttcaaaaatt ttcaaaaaaa tcgattacgt gattaagtga cgtcccggagc acaaaactta 240
 tgggtccaaa tatattttaa atnttaaaag tccaaatgtc caaaatctgt attacaaatc 300
 tgtcagtcct tttgcaatcc tttatcaaatt attattttcc atcaaagcac acactttttt 360
 atacatgcat tttccaaata cgt 383

<210> 1184

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1184

tttttttttt tttttttttt tcacataata tacatttatt ttcaatttaa ttaacnggga 60
 aatgctattn cataaatata acgtattnta acatacaaaa atcaaaacat atttatncta 120
 ctaagtttat nctgttngca acagttgtct taccttaaag taaaaactgg gggccctgcc 180
 ctatatacac tngtcttatt tactgattac aatcacatct gacaatccca atcacaattn 240
 antntaatcn ccantcatt tatttaattt ataatacaata tgcctggatt tgaattttaa 300
 ttcaatngga aaaccaatca gatnggtngc acacataaat atactatttt gtattttatc 360
 gacatgaaga gataagttat atttttagat caccactgac ttttttactt ttgattaagt 420
 ctcaaattta tatttatatat ttaaattattg gtttataata ctgaatattt gatgtgngaa 480
 tattattaag ccaaaagatt 500

<210> 1185

<211> 327

<212> DNA

<213> Ctenocephalides felis

<400> 1185

```

cttctactct atcgctctg aagaaagacc aatctttaat aggtcgtatg aagatttttt 60
tcttggcatc aagaggtgaa ttatcttgtc ggaattcttg agaccatggt cggtgagctc 120
cgaagtagaa cttccttttt ttgatttctt tcctcgaata attcggtttg ttaggagttt 180
tccaatatac ttgttccatg ctgcgttaa thtagttttc tggcaaattg gaatattgtt 240
ttgttaaate gccaaccttt tggcataatt gcaaagatct cctcatgttt gaaattattt 300
acacaaaatc aatgacagaa taatagt 327

```

<210> 1186

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1186

```

atataagtaa acacaaaat aatccattgg ggtccaata gattatattc ataattaata 60
ttacttacac gtagttatat ttttattggt aggaagtagt gatcattaaa gttcaatttg 120
aaaaaatatc aatttttttt tatcaaatgc tngttagtga attatatata caatttcatt 180
tataaatttg ccaaatacta atttataggt gattatattt tctattctgc ccatcacaaa 240
taaatgaatt cttttttata ttccctccat ttgcttttag attcagtagt aatcactact 300
tctatcaata atcaatgcat atccctaatt aagagagnag attcaaatat cattttatta 360
attctaaga ggattcttat gttgatcgat attttaacat gntgaaagga aaactgaacg 420
acttgcctct ttatattctc attttaatag cagantgntt tttgaattag gtataatatc 480
tatatttatg cnaaataa 498

```

<210> 1187

<211> 496

<212> DNA

<213> Ctenocephalides felis

<400> 1187

```

aagcngaaaa aatatgaaaa atatgtaaac tagnaataata ataaatatta taattatttg 60
gcaattaata ttaattataa aactattatt atatttctag aagcaaaatt ttttttcct 120
taaagatgtt tttttgtagc atgtgtattt cattcaattt acaattatta tgaaggagaa 180
aaactgtcga atatggagtc acgttttact ttaaaatttc aataaagtat ttaataaat 240
aacatgttta atgaatttaa ttttttcca tttattatac acagagagaa tgctttatat 300
tcaaagattt atgttttaaa atcatttttc ataaagggtt tcatatacga cttttatatt 360
ctaaatcatt aatttttggg atttttataa taattaataa aacaaattta ttcagtaccc 420
nacntcagta tttaaaaaatt attaacaagg atatgcttat attaatacaa tngnagtggt 480
naattatttg cncaaa 496

```

<210> 1188

<211> 448

<212> DNA

<213> Ctenocephalides felis

<400> 1188

```

ccgggcccggg gaccagaagt ttacttacat aacttgngng ggnaacttat tccaaaaaga 60
tgnngnttacg ggngnatata gnagaataag atttaatatg tnatattaca tggnaacttaa 120
tttttaattg,natatcaatc tttagtataa gcaagactac gagggccgta ttttaatgna 180
tattaaaaat gatgngnata atcattatctt ctatttaatt caaaagagta tatatttgn 240
atatctatat ttaaacaaat attattaaaa taatcatata taaattatac agcattctat 300
tttattcaat ggcattgagca ttcaggacgt aaagngatta acaggggttcg atcaaaatag 360
aattctatag ttttgggtcta aaagaaacga aatttttaaa aaattatgtt attcngnggg 420
tttattacag ctattaaatt ttttacct 448

```

<210> 1189

<211> 117

<212> DNA

<213> Ctenocephalides felis

<400> 1189

```

cgnacgccct cttaancncc ttaaaangcc ctcgagcggg ccgnccgggc acggactttt 60
aaantacaaa ttnacggnat tggtataaac taacagaatt gacagtttta taattgt 117

```

<210> 1190

<211> 213

<212> DNA

<213> Ctenocephalides felis

<400> 1190

```

caacaacaat ttcnaaaca aatggctgga nggataaaac ggntaaaaaa nggtattcaa 60
tnggattggn ttttgggtacc ggtaatnccc taaaggaggc caggggaggc actttttctt 120
tntgggaggc ggggtggactt nggcccaatg gtcaatttcg gttatttncc aaacttcaag 180
gcttttgaaa ctttggcatt caaaggacaa agt 213

```

<210> 1191

<211> 207

<212> DNA

<213> Ctenocephalides felis

<400> 1191

```

cgctatcaca gaaaagaac cagccatgat tgccgaagtg tcggtgactc tcatgtgatt 60
catataatca gctttgtgtt gcttgtgatg atgggtgctt ttgaattgtt cttcatgttc 120
attagattca cgatcctggt gaattgggtg aaccaactcg gctccaaaat caggcgacga 180
agaagagctt tcctgaatcc tctccgt 207

```

<210> 1192

<211> 330

<212> DNA

<213> Ctenocephalides felis

<400> 1192

```

agggantagt aaagggaaat tagngcccat tgataccaaa acaaaagaat tnggtctggc 60
ttaaatttca acaaaaaaat ggttgggggt antggaggga atgaaaaaaa ttcactggaa 120
ttaaattggcg gtctanttcc ctcacccatt tcaacaagg gatcaacgaa aggggtgggc 180
aatngttttc aagccgcatn ccaagttnat tttagtagga atcaagcccc tcaagcggat 240
nccctacctt ctttaatttg cttgcaaggg tattgaaacc gggttttaag cttggcccat 300
tgnaccgggt ctttggtctaa ccaaaaaagt 330

```

<210> 1193

<211> 149

<212> DNA

<213> Ctenocephalides felis

<400> 1193

```

ataaaacaaa cccccgatt ataaaatatn aaaatatgta ccatatcatt aggttaagna 60
tgtaaatagc gtcgaaaaat tatttattaa taaaacattc ttaaaataat tgattgcaat 120
tatgaattca ttaacgatat ttgttatgt 149

```

<210> 1194

<211> 342

<212> DNA

<213> Ctenocephalides felis

<400> 1194

```

aaaatggcat tatatgcnaa ttataggctg agcctttata aatctgtgna tgaaccanac 60
cactctatct tctaacctaa agtgtaattt tgttttacag aatttcttta ataggtaata 120
tttttaattg cagngtatca tattatagtt tgtaggtggt atattttatt tgtaaatgn 180
tgttcatatt tctcaaacga ttgtttatgt attacacagt attaaaataa accttggtatg 240
caataattgt tataacaaca ttgttgtag taataaaatt ttatcaatgg attattaaaa 300
aaaaaaaaa aaaaanannaa anaaaaaaaaa aaaaaaaaaa aa 342

```

<210> 1195

<211> 131

<212> DNA

<213> Ctenocephalides felis

<400> 1195

```

atgatggcat tcatgacgac ttctgtcgtg naacaggcat tttttgttca caaatcctgn 60
ncagtaaatt ataaatataa cgaaactatt tgtagaaacc tttctcagta taaagacatc 120
aacaccaaag t 131

```

<210> 1196

<211> 463

<212> DNA

<213> Ctenocephalides felis

<400> 1196

```

gtgcagtttt taattgngaa ttaaatatat gttgatttaa tttttgngna aactgangag 60
cgtttattta aaatcaatat taaactaaca ttgctaaggt gatcttaa at ggtgaaatgt 120
tcattatcat attaaatttc aattcaacgt atctacttca tcaaaataaa taattttatt 180
ggtgacttca aattatcaat atacctcctt caaattataa atataacctca attttttttc 240
acatgccgtg cagtgccgtt tgaaaattgt aagttacatg cttttgttga tttgtaattg 300
aatcttttga tgtcttggaa aacttttatt gntacacata aaggatgaat tataaatcaa 360
tggaagcatg taatgattgc attacacata ttcgcctcat atatattaag tatattttgg 420
tggttaattct tgcacttatt ggttaatat ttattcaaat atg 463

```

<210> 1197

<211> 252

<212> DNA

<213> Ctenocephalides felis

<400> 1197

```

ngntcttcaa cnttgctctc caangccctn nagecgnncgn ncggggacgt ttttttttaa 60
ctgntaaaat atttattata aaaatacaaa acaaatttca taaaatatnc attacaattt 120
gngaccaaaa aaattaataa ttccctgttg catcaatatt gccttacaaa aaatttcac 180
gaatgaaaat ttatattata ttctatttaa acacttatta actattattt ttagttcaag 240
ctaattgaac gg 252

```

<210> 1198

<211> 444

<212> DNA

<213> Ctenocephalides felis

<400> 1198

```

aacaaaaaat aaaaaataac ccattttact ggattcat ttt gaataataaa tatgttngtc 60
tgnatgggtt ttttcttaaa aaaaataacc aatatctaca attgtctttg acacaatata 120
ttaataacag acactaacat agtatttgaa ataacatagt attaatttt gtattaaggc 180
actcaatact ataggaatac ttggaacgcg cattgctaaa ttcctcgctt atccaaaata 240
cgtataaata cttattatca attatagggg catatttgcta aatgacttaa aatcaataaa 300
aagcgaatct cgcgtataaa aaaatgccat catcatatct cactgtgtgn aaaaatatta 360
aaaatttgat cacgatgatt ttgctgatca caacttatgc tagactcaca atatgtgaat 420
taaacatgag ctctcttata ttg 444

```

<210> 1199

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1199

```

attattcata agacatcaaa gactttatta cataagggac aacatagtaa ttaaagttac 60
agaaacaatg cagagtcaat acttcgattg cttataggaa ttcattggagg tcgaagaaat 120
ttctagtata tttttgattt caaatittaa tactcagtta atggatgaa tgctaagtct 180
ctctctactt tattcatata tgacaatatt gcacatttgt gcacgaaacc ttgagttgaa 240
tttttcagag atagttatgc atgaaatggt gaataccagt atttgctcca acggccttcc 300
tgcatgcgtc tatatggaag ctatgaactc attttaagt tgaagatttt atggaattaa 360
ttataagagc ataatgactc tgagtttgag gaacttgctt atgtttaact aaatcatttg 420
caacaacatt taaagtcgga actgttcaca actggaaaca ggatatctgc atttataata 480
ctttaataat aattgcat

```

<210> 1200

<211> 226

<212> DNA

<213> Ctenocephalides felis

<400> 1200

```

ttaaataattt atatgatatt tctctacgat gtttaataaa aaaaaaattg attgttttga 60
acttgaaatg tagatttgga atatctgcac gactgttatt aatttaaaaa gttcaaagat 120
tgtttattca ataaggaaca tattaaatat catattgtta aatttttata tattgatcta 180
ttgtaatcta tctctgtgat taacattttac caattaaaat tggagt

```

<210> 1201

<211> 228

<212> DNA

<213> Ctenocephalides felis

<400> 1201

```

agtatataga tagatagaaa ataaatatag atattaaact gtgtttaatt aaatattnac 60
aacatataat ttataaatat atgcttagaa aaatacttgt agcagcatta aaattaacat 120
atcaagcatt tgttttcata aaaattaaaa actgcttcat ttatatgatg aaactatgat 180
cgtaaggctt gcaggcgact ctgcatttct tctaaatctt cttctggt

```

<210> 1202

<211> 70

<212> DNA

<213> Ctenocephalides felis

<400> 1202

```

acttagcggg cgccgtgcaa gtgattcgac caaagacgga caccgaagta gacgtggaac 60
tataactggt

```

<210> 1203

<211> 114

<212> DNA

<213> Ctenocephalides felis

<400> 1203

```

ggcgcaaccc ttttggcgac tgcctcacct gccttcttag tgagtttctt aagattattt 60
ctctttttga tgtaagaat agtcttaact ctctcttgt tttcaagagt acgt      114

```

<210> 1204

<211> 337

<212> DNA

<213> Ctenocephalides felis

<400> 1204

```

gaatactggg tcataaaaatt tagaagccct nntttttcgc ctacggcggg atggnngttcc 60
gattngtgtc cgggcttggt caaaaatgta aaatccacac gcgcattctt caaaggcggt 120
aattcatgta aaacattcgg taaccttaac anttgtgtta cttaaattct ctgcacgggt 180
tgaaaacaat ccttaagcat tttaaatcat cccttacant tttaccctgg ntgattaatt 240
tagtaaatc cgtcaccgga tttgtcgagt gtttaacttt atcggcgatg ctggttctgc 300
acgcgttcaa ttttcggcgt gttttgtcaa atcttgg      337

```

<210> 1205

<211> 445

<212> DNA

<213> Ctenocephalides felis

<400> 1205

```

aaatatggcc caaacaataa attgcttttt ctctaattgn gctttttaat gaagaatcat 60
acataagtat gaataatttc ctaactaata ttgctttatc attgatttct ttgaaatcag 120
tgtctttaaa gnttcctatt tcacttccat ttggcatagg aagttcactg caacgagaaa 180
tcaaacttat acctacacaa gctgcttcaa taatcattgg tttagaggac ataacatgtt 240
gtaacaatgc atttactgca attgtataag tattgctttc aatcagntta ctagaatccc 300
tttttgaaat ttgtattcta cgttcacatg cattgctaaa tgctaataatc agcccatgtt 360
tgttttcatc agatatgtta gctgattttg attgctttat catagactga atttcttttt 420
caaattcaaa tgctttcata gtgggt      445

```

<210> 1206

<211> 383

<212> DNA

<213> Ctenocephalides felis

<400> 1206

```

catataactg tatgaacagt actatataaa tgatgcgtgt attataattt cgagttaaaa 60
cattttattt gtgattatac ttgtgattta atatacaata tctattttta gttatgacat 120
gttaccgact caaaaaagtt gatataattga atttttatat aatttaaact atttgtgaag 180
agatttaata cttctattta tgtataattg taaataataa atacagtatt aatttggtgt 240
ataatagaag atattataag tatatttaga agcattgatt attaattctc ttaagcggtc 300
ttatctttta aactgttatc acatttctaa atgtttaata aataaaccag ttgaaaaaaa 360
aaaaaanaaa naaaaaaaaaaaa aaa 383

```

<210> 1207

<211> 350

<212> DNA

<213> Ctenocephalides felis

<400> 1207

```

caacgacgac gacggagatg ccaaccacgg aaatactcga ctacaaccac agaagaacca 60
accaccacca cgaagtcaac aacgacaacg agcaatacac caactccagg atttccaaat 120
tggtgtctat aattggcaag tgataagata atatccacta ttcaataaac tattaatgtt 180
aaaaaaaaat tcagtattat aaagaacaca aacaatatta ataataagtt attctttata 240
ttcagtaaca gtattaattc tgnttggtta tgtcggtgta aaaattatac aaataaatta 300
atttggaat atgaacaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 350

```

<210> 1208

<211> 147

<212> DNA

<213> Ctenocephalides felis

<400> 1208

```

attaactact tttgatgcat aaaaagctgc agaagagtgc actaatcgat tatgttgagg 60
ccacttcatt aacacctttg ttctaggtat gttatatacc tctggtttgg ctagtcttag 120
aacgcattgt ttgtgtgagg ctttagt 147

```

<210> 1209

<211> 304

<212> DNA

<213> Ctenocephalides felis

<400> 1209

```

caacttttaa tgatattcaa cttcaaactc acgtggctaa tattttccaa gttgatagaa 60
gtaaaattaa aataactcat acacctgaaa cttcagtaac tattctctct tgatttcagt 120
attaaaatat aataacaaaa agtgataatg taattttggt catgagtttt tgctgaaatg 180
atctgaatat ttacctgttt tcgaattacc aaacattgaa agtttaaaaa taaaaaatat 240
ttattacttt aattttattt agcatatgaa caattcatat tgtaaactta taataaataa 300
tagt 304

```

<210> 1210

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1210

```

aaaaggagaa gtttctaaag acnatttttn ttntacatgt acctagttag tgtgnggggg 60
ggaaattgct attgcatatt acatacaagc ttaataaagg ttatgggtgat ttatttcatt 120
taaaggcaan gtatcggnntt aatggcnnta aatntatntt ttatttaata ttaaatagat 180
taattaaaaa tctataaagt gataagagggc ctgatatcca taatattatt gaatattaag 240
aagtgcagga tagatctgat aatgtagtag ttgttataga caatttactt aataattatg 300
agttgcatca ttatgcaatg atttatcact attatttatt caacatttta tttaactgct 360
tgcaactttt aataaaacgc atnttttatt gttttaagta taaatcttat tagggcacia 420
tatgaaaata aaaataaaga actttataca aaagctnttt tatcaatatg cttcttgccg 480
tattaagtta agaaattt

```

<210> 1211

<211> 342

<212> DNA

<213> Ctenocephalides felis

<400> 1211

```

caatgacaga aaaacctcgt attgntatca ctaaaaattc aattccaaca agtgcctcgg 60
cttatactag ggcgaagaa aaaaaggcga acaatgtaga tattattcgt aagaacagcg 120
acacttcgaa taaaactgac tcgtaagaat tttgtgaaaa gtgtttgtga aagtattatt 180
ttgtcaaaag gacgatttag gctatgtagt gactgtatgg ttaagaacta tattagaact 240
tattgctcat aaatccaaac atacaataat ctttataaaa atcttaataa tttattaaat 300
atttttacat aaaaaataaa aatagtaaaa acgcaaaaaa aa

```

<210> 1212

<211> 487

<212> DNA

<213> Ctenocephalides felis

<400> 1212

```

tgaacttcat tttttaaatt taatcanagn ntatttttta aacaaaacat agtagcggng 60
taataataaaa aatacattta tataacacat taagttttaa aaataaaaga aagcaacta 120
caaaacaaag tttaaatttt tcaaaatcaa aaaccgtaga ataagtatca attataagaa 180
tttttttatt gcttttttaa tttttttata taacttacat gtaataatac atttctttat 240
catagaaact ttttatacat gctattatta tctatatgta aaagattgtg caaaaatatt 300
tgagtaaatt ttcaaatcaa aataatacga aacttataat caagcgggta atgtaatttt 360
tttttgtctt ttctgacatt attatcttaa ctgtttttta gacttagttt gtgtttctca 420
atctccaaaa taatttatca ccatgaaata tctcttatca tatattttta aacttaattc 480
tataggt

```


<210> 1213
 <211> 236
 <212> DNA
 <213> Ctenocephalides felis

<400> 1213
 atctgagata cagcgattag taattgntng ccagctactt aaagagtatg ctgcatantt 60
 atttatacgc tatataatta tatcttttat attaaatttt gataaagaag tgaatataaa 120
 aaagattaaa ttttaattaca agcgtataat tgtatattgt ttgatttaca ccaataaaaag 180
 canatcagta agttgagttt ctttaaaaaa aaaaaannaa aaaaaaaaaa aaaann 236

<210> 1214
 <211> 379
 <212> DNA
 <213> Ctenocephalides felis

<400> 1214
 gggggttnta agaaacncnn ntttgaccca ccnntttttt anggggcccc ccggccggga 60
 cnagttgtat aaaacataaa ttgtaagtnn tcttacaggc acatgctatt gncttattgn 120
 atntatttgt tctaccagga aagngcttta tagattttac taaatatata ttaagaaaag 180
 cgttctctgt tgaattgtaa ttaatccttt ttgtaagatt tacagcangt atgaagaaat 240
 gttaaatttt gttaaatttc atgtattgna tatgatattc gcacgtactt atgaaatgta 300
 tgtcagtcaa atgctgaatt tattttaata tacaatcttt gnaatacaac nnanaaaaaa 360
 aaaaanaaaa aaaaaaaaaa 379

<210> 1215
 <211> 498
 <212> DNA
 <213> Ctenocephalides felis

<400> 1215
 ataaacaagc agaaataaat atagctgcta tacatatttc tgcttgttta tgtaccganc 60
 agagtggtaa cagaagatac tcanatattt taaatgtagg tttccaagc ccatccaatg 120
 ttcccagcaa atcaaattatt gacccaatca atttaagcta cagtggaaat caaataactta 180
 ctacctcaac cagccccga agcacattta gctatagcaa tgcactccgt ggtcagacta 240
 ctcaacgccc ctttaataga aacacaaata taccaaataa tgaccgattt tggcctcaac 300
 taccacaaag aggaccacaa tccggtgaca atactcaatt tagttctagc ggtgtttcaa 360
 atataaatcc aagtcaaata aatactcaca atcaaatgt aagaccacag agtgcaaata 420
 ataatagacc attcagttac agtagtattg ngggtgcatc caataataat ctgccaatct 480
 gtactcctca acaactaa 498

<210> 1216
 <211> 343
 <212> DNA
 <213> Ctenocephalides felis

<400> 1216

```

caatgacaga aaaacctcgt attgntatca ctaaaaattc aattccaaca agtgatctgg 60
cttatactag gcgccaagaa aaaaaggcga acaatgtaga tattattcgt aagaacagcg 120
acacttcgaa taaaactgac tcgtaagaat tttgtgaaaa gtgtttgtga aagtattatt 180
ttgtcaaaaag gacgatttan gctatgtagt gactgtatgg ttaagaacta tattagaact 240
tattgctcat aaatccaaac atacaataat ctttataaaa atacttaata atttattaaa 300
tattttttaca taaaaaataa aaatagtaaa aacgcaaaaa aaa 343

```

<210> 1217

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 1217

```

catatgtaga aataccaatc aattngntga ttacatcaaa aatatcaaat gttnaattga 60
acttttcttt gaaaaatatc gatgaactaa ctattgattt gccacaaatc atatcgcaaa 120
catttggaat tgtgcagaaa actgcaaatc ttataccaga aaaagacgaa acaacanttt 180
cagataaaca acaaaatttt gctaatagaag atttgtaga tccagagaag ttgacaaaa 240
tgccagggtc ttggcccggt gacctaccat tgcctatgcc ttgttgggga agagaaactg 300
atgcaaaagt agatttttca tcagtaatag aatatgaggc atttgccagc agagtagaaa 360
tgacggaaca gagattattg gaagagacca actatgatac ttagataaac tttttacaat 420
tcagccagga atatagaaaa atgagggatg cttccgaaca aattatgacc tggataaatt 480
cttncgtgct tatcacca 498

```

<210> 1218

<211> 420

<212> DNA

<213> *Ctenocephalides felis*

<400> 1218

```

ccnaanntta atccctgttg atatagcatc acgaaatgct cccattgga aactgcccac 60
tgngtatact ggctttgctt ctttggttat ctcttcttca gaatttactt ggtctgcaag 120
tagttttatt tgcattacgt ctctgtaagt ttcttttcct tgtaaaacag ccatggcaga 180
ttttgctaaa gcagaaactc gttttattcc actttcagac gctccaggaa acatttcgga 240
tcctacatta ctacatctgc ctaacggcaa aaccccaatg ggacaagttg caccatctgg 300
tcggcgtaac attcctgtaa cagtttcagc taatgttcca tcacctcag caacaagtaa 360
agcgtctggt aatgtaggca tttcctctat aatttttcta gcgcttcctt ctgcagttgt 420

```

<210> 1219

<211> 183

<212> DNA

<213> *Ctenocephalides felis*

<400> 1219

```

caattatcta gtgaaaaaat gtctcgattt tttttgcacg tgactcaata atctagagtc 60
aataggtaaa tagctatttc cactgaccag aaatttcatt tcaattgact tagctcttat 120
ttccgtattt taaacaagtt tcaataaact taagacagtt ttaatatctc tgttttgccg 180
ggt 183

```

<210> 1220

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1220

```

cctgcaaaat ggtaggactg ctcaatattg ttttattagc ttttgcatct gttaactttt 60
ctttgtaatt ctcaattctc cataccatgt gcccogttcc attaaccggt tcaactaaaag 120
ccttatggaa ggcccttgca tcttctgcat cttttatctg ntgtgacaat tgcgccacca 180
atctctcttg ttaaccaat tgccgactta atttatccaa aatatctgta ttatcttgaa 240
ctgtgctttt catagatttc aattcgtata aaaaagaagc tattcgagct ttttgtttgt 300
ccaactcgtc tgccgttttc gtatgatctt cataaaagtt ggaagccact tctcgtctcg 360
ttttttgggc atctttttgt aattgtatta ctgattgcgt atgagancca tgtcttgtct 420
aactcattta ctcttgcgaa gtttttatcc tgccgttaat acgacctoga cttgggttct 480
tggtttcttc atctagtatc 500

```

<210> 1221

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 1221

```

aaactacaaa ctacaaaata attaagatca ttatatgaat cacataattg tataactaaa 60
aactgcattt tatcataaaa attgntataa ttttttttta taaataataa ttattattat 120
tatectgaaa aattttgaga attgacaatt tccatacatt atgccactga atcataccga 180
attctgtcaa aatatcatgt atttgctgtg cattcaggcg ttttacacat aaactgcaac 240
cgtcaatcgt atgttatgaa gctgagtcag aaagaccatg ttatataaca tcgttttttg 300
acgtttgtgt gggttctggg tttttatgtg ataacttgag aaatcgccctg actgcagagc 360
aaccgcatgg cttttgcaat attcagtatg gaaagntgtc gtatcatagc cttgcataac 420
ataagtctgt tatgcggccg aatcggccat taatattaaa ttttgatgtg atttttagaa 480
taaaatatgc tcagtgtt 498

```

<210> 1222

<211> 402

<212> DNA

<213> *Ctenocephalides felis*

<400> 1222

```

ccgnaagggg acanaaattg ataaagctaa aaaggactta ttcaagaaaa ttactagtca 60
gttaattggg ccgtagtatt agtgagttat tcagaaagga agtaaaaaatt gcaaatctcc 120

```

```

ctttactcat tgtgccaaag ccagaacaac aagctctcgt tgactcaaca aatgatgtng 180
gattaataaaa actgtttgat cgaaagtaaa ttgttataaa aacatctgaa cacataatca 240
atatctattg attaaatfff gtatgaatga gacattagca tttaaagtat ttatctctaa 300
cgcatfcttct acttaatgta gataactatt ctttggaac caaatctatt ggttacaata 360
aatatttcta agtggttaaaa aaaaaaaaaa aaaaaaaaaa aa 402

```

<210> 1223

<211> 207

<212> DNA

<213> *Ctenocephalides felis*

<400> 1223

```

aaatgatatt aactttataa ttttttttta taaaaagcca aaattttctc acgtgcgcca 60
aaaattgtgc taaaaagta aaacatctgg tgcttaacat atttttgttc aagcactaaa 120
aatagtgttt aatttgacct taaccacttt ggtttatatt tagcaaaaat ttattaaaaag 180
cgatataaat aatattgata attaagt 207

```

<210> 1224

<211> 427

<212> DNA

<213> *Ctenocephalides felis*

<400> 1224

```

tcatacattg caactgatgt agacatatat tcaagcatat ataaatactc cttcacaaaa 60
taaataacaag atcgatctac taataattgt tacattttta tatatatcgc tatttactgt 120
ttgtaacaac ttaagataat tcattttctt ctatttgaga aagaaaatga tcaaacattt 180
tgcaaagaat attaaaaat aattatatca cgaaaaagtt ttattcatgg aatcaaaagt 240
tattcaaaat gtcaactatt taaaaactaa attaacaatt acattcaatt ttgatacagt 300
tattaaagta acatcaataa attttgaata cgcatctaca tgaatagttt cttaaatttt 360
gaaatgaaaa ctgacaatta tttaattcag gctaattctta catttgcaat ataataatca 420
ctacaag 427

```

<210> 1225

<211> 263

<212> DNA

<213> *Ctenocephalides felis*

<400> 1225

```

ttcatttcag gcataaattc tggtgttttg tgaccattaa taacatcaac ccctggtaac 60
atatgaccag gccagtgta gtgccctggt tcatattcaa atttcacagg tgtgctcaca 120
tgtggagcta aaggaggagc cagagatctg agatgatttc cattagagga tggaggactg 180
ttttgttctt ggaagtatct tctggcaaac atatggtggt tcttctgagc aacaggaggc 240
tggcgcgagg atatcgaggc ggt 263

```

<210> 1226

<211> 295

<212> DNA

<213> Ctenocephalides felis

<400> 1226

```

tggttagggc ccncccccg acaaaccaca antattaaat tagaggagag gtttttttag 60
taaaaaaaaa aaaaantaaa gggcaagggt gaaagggtgg atgcactttc tttaaataaan 120
nnactgntaa ataaagntta tatttatatt aaattacaat taggactaca taatgcactt 180
taaaaattat ggcatagtta agacttcatt agaaatacaa taagctacaa ttataaattg 240
gatttatatt nggattttta tcataaaaga ataaatcat tcagaatgca aaaaa 295

```

<210> 1227

<211> 335

<212> DNA

<213> Ctenocephalides felis

<400> 1227

```

ctggcacttc cccaataaaa aacgccannn aaacctaaaa ataggnaatt aaataagact 60
gggnagcagt gatgatagcg gagctgtgtc tcctgataca actacaacaa tttctccttt 120
aaagaatgct gcagataaaa ctgngaagac taattaattt taatgccaga taaacttgat 180
ttttgatata catatgttgg tatgtagtta tgaatttaat atactttaat taaaccatt 240
ccaaaaatca taattcatat tttttaaatt tgatttaaga aatcttaatg tgtaacttta 300
ttttgttttt atttagagct gnaaagtttt attgn 335

```

<210> 1228

<211> 225

<212> DNA

<213> Ctenocephalides felis

<400> 1228

```

caaagggttn aaaagggtccg gnaacaatcg ttttttttc naaaataaaa ggantgtnaa 60
ngggnggggn tattggggang aaaaaaagta naagaacccc aanntattgg ccccgcaa 120
aatgcatgtg aataccttat ntcataaatg gcgggnctat gggctttggg cacaaaaatg 180
gctatcaagn tacatgtcct gnaacaagnc taaggngctt tcgna 225

```

<210> 1229

<211> 435

<212> DNA

<213> Ctenocephalides felis

<400> 1229

```

tcttttaaan agagttnggg tttaattcat tggactnttc aagaaatgca caggcttgng 60
gggngngtga aaaccagcgg taaacttgga aaaaaatatt ttggatacaa agttaaacgt 120
gctgatcctg aattaaataa aggntgngat aaaacctgtc ttaaaaatca tatgtgtgca 180

```

```

atagttacca cagntgtatc agatctcatc cagtgcacaaa atatcatcaa atcatcatca 240
agcattcttc agcatttgaa tatatatgtc ctaggagcta ttgtaatttc caattattta 300
ttattataaa gtcatttttg ttaagttatt ataaatttag aataaatcat tatgttgga 360
atatgtaaac gctttgaaaa agctaggatc aaatcaaata ttttttgaaa aaaaaaann 420
naaaaaaaaa aaaaaa 435

```

<210> 1230

<211> 282

<212> DNA

<213> *Ctenocephalides felis*

<400> 1230

```

ttttatatta catagatntt ttcttttatg tttttgtaag ctttgaaaaa acaattngtt 60
tttcatatat attttataca caagaatgtc ctgtatgctt attttttta tccaacgaaa 120
taaaagaaca aataaacgta aaaaataact acattatgaa cccaataaa atataatact 180
cctgtgtaac gcgggatgtc gngttcccat tgtaatttta tgtaaatatg tataatttga 240
aagctcgtat attgcttggt ctattttctt gtatataaat gt 282

```

<210> 1231

<211> 101

<212> DNA

<213> *Ctenocephalides felis*

<400> 1231

```

cattcaaaag atatcattta aatttattgg gaaattaact ataataataa taattgattt 60
atttcttaaa gctattaacc cattattttc aaattgcatg t 101

```

<210> 1232

<211> 224

<212> DNA

<213> *Ctenocephalides felis*

<400> 1232

```

ggttgaaccg ttcaagtatt ttataagtga tgtctctgat tgtgtatttt tcaaggcact 60
tgattttatg ttcattgttt taatatcaat gtgccttctc ggtagtatat aaattttaca 120
tagtaaatcc tgtttttgat tttatcgac attttttggt ttgttttaaa ttaattttac 180
aagagaccat cacttataag ctgtaatttt actaaaacta aagt 224

```

<210> 1233

<211> 347

<212> DNA

<213> *Ctenocephalides felis*

<400> 1233

```

caactgttga agatgagaag aaaccagtta ccaacggaac tttaccaaaag attgaagaaa 60
agtgtgacag cgttgcagac cttaatggat ccataaataa atcttttagat catctaaagc 120
caccagaagt agcagttgct gatatcaaca cctgtattcc agaaaagaat aaagactttt 180
tatgtggtat cagagaaaagt cagctcttan atcatgaact gcagtgggac tccatggaaag 240
acaaggaatc caggcagaac gatgatgcag agtcggacca tagcgaagaa gacgacttgg 300
gtgaattgcc ggtagaacc gtattggatc agtatgcacc tctaggt 347

```

<210> 1234

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1234

```

tataactata ataatggggc aattctgctt cataacacat agttgtcatg gcaacgcgta 60
gtgaagactt cgaaaacggt aagctatttg ccgtgcgac aggcgtnttt tacatataaa 120
catagcaaga aagaatgtta tgaaaacagc atcataagat tcttctttgc ttgtttatat 180
gtaaaataaa tgtagacatt ttnatattgc catgacaacg ttatattatg agctctgtta 240
cgccagaatt gcccataag tttaaattt cttcaatnat ctttctccat tggtnaaaaa 300
atattttatt tacagtnnta gcacagtctt gtgaatctat ttgcgaattc tacattttta 360
taataaatat aaaaacant gaccgccatc cgcatactag aagaaacatt ccaatctgat 420
acctcattcc atttgntcaa aatnaaaaat aaaattacag ncgactgatt tattcctggg 480
tgcttaaaaa aaatccnt 498

```

<210> 1235

<211> 337

<212> DNA

<213> Ctenocephalides felis

<400> 1235

```

ttttataagc agaaccacca ggtgaaagat aaacgttcca ggatcctgca ttattgaaaa 60
ctttcagaaa attaccagat aatttatttt gtatacaaaa cngtctgtta tatgcagcag 120
cctggatgga agatggtaac ttttgtatta gtttggnaac ttntttcttt tcatntggnt 180
gaaaattgga tcgatnatac acttttttga cgcgttgac aaaagtgaat aaatcatcgt 240
aattattggt tngcaataaa tcattcacta caaataaccc atgaatgctc agtggttnagt 300
tactgntgna actaacaaaa tctatgagag aaagtgt 337

```

<210> 1236

<211> 351

<212> DNA

<213> Ctenocephalides felis

<400> 1236

```

taacccttta nggattccct tccnggccng aannnggtta acngggncgg cgggccgagg 60
gtccatccta gggcgaaaat ttttaataa gaaataaaat gaggtcgcct tctttttgaa 120
aaccattttt gttctttgnt aagcagnatc ggcaggtgaa acataaacct gncaggatcc 180

```

tttataatta actttcaa at aattatcaga ctctttatctt cgtatacaaa atgtgtncgc 240
 tataagcagc agcctgaaca gaagaaggna aacttttgta ttagtttggt aactttttgc 300
 ttttcatcag ggtgaagatt tgaatattna tatgttcctc tgacatgtcg n 351

<210> 1237

<211> 156

<212> DNA

<213> Ctenocephalides felis

<400> 1237

aaagccagcg atagnataga actgctatgt ttncctccaa ataccactgt tgttttatca 60
 tntaaaaatg ccataagtat ggagctaattg catccaatca ccatcaatat atatatatat 120
 gaagagtctt ttatccttcc tgggtaaagn ttctgt 156

<210> 1238

<211> 347

<212> DNA

<213> Ctenocephalides felis

<400> 1238

tttcttnttt tttntntttc ttttntttta ttcngnataa ggggggnata attcatagnt 60
 tatcttataa attacaaaca tgaagtcaag ccgnttgatc caatatgaan attggtggat 120
 ataaatatcg atgatccaaa tacaagtctg ntgntcaaac cttcaagnga tataatacaa 180
 aaattatgct ggaatgcttt gggtaggaac tcttatcccg attaaaatga cgagataaaa 240
 ataaaaacag caaatatgcn taaaatgagg atgatgtaga tgaaataaag atgnnnatat 300
 taattaatga tgtaaatgaa cacttttctt agaagcactt cctgtgt 347

<210> 1239

<211> 598

<212> DNA

<213> Ctenocephalides felis

<400> 1239

tataatataa ngnttttagt attaaatggn ttgagaaact aatttagtta agttgtatag 60
 antaaantat aatcgngnga nantatgttt atatttataa ancctcgaga tggagnttaa 120
 ngtttagatga atatattaaa atgtatgntc taacaatngt aatattaatg tnaattttaa 180
 cccggaaatt aaggaaaaca tngctttgat gactacttag cttccgatcc agaggtgatt 240
 tagacattta gttagcattt taaaatattg tgtagctaac atttcgngtg attttgcaac 300
 taatcagtta tttaagaaat gtgcatataa ttattatata catattatnt tacatacctg 360
 gntagnattc aaaaaacttg ncaattactt cgccaaaaga acattggggg gataataata 420
 tcatattatg caacattctt tattacgggn agtttacttg aaggatctgg tttcttgctn 480
 tttttcattt gatcagaaaa taatcaaact tacagtattt gggtagcagt ntncgaaaat 540
 taacnggntt accatattaa aaaattnta taattcanna cccggttttg gaaaaaan 598

<210> 1240

<211> 446

<212> DNA

<213> Ctenocephalides felis

<400> 1240

```

ttgaaat ttt atgtgtnatt atatttatta tgtagtaaa caagtgaac cgctgctata 60
aagnattgtt taatctgaat gtttatatat attgtatttt caagattatc ggcaactatgg 120
tatttcttac aacattcata ctatacaatt ataaaaatat atgcantttt tgnntgnnta 180
catattggng gataaccac aaataatatg aaatggaaaa aaaaatgtaa accggngaca 240
caaaatactg gagacaatta ttataacang ggatattcaa cttttaaant ttcatacaata 300
gntttttatg anctcgcttt tgaaggattc attcatttat tcaatccaat gncnaatcat 360
aaatttattg gnntttaggg gcactactat attggattaa taaganaaac aacttngtta 420
tgaaaaaatt caantaaac catgnn 446

```

<210> 1241

<211> 274

<212> DNA

<213> Ctenocephalides felis

<400> 1241

```

tttaagtcta aaagaaatcc aagctttttt atctcaaagt atcaattttg attttaaggt 60
gatttaatta ttttatataa ttatatataa agaaactggt ttacaatcag tgaatatttc 120
cacaaaatta ttaaaactat ataaatataa tacaagtcca tcatagggtat gactactttt 180
gacgaaatat tcataatttt gaccaactac cctctttcat aattttgacc atattatcaa 240
gttaacccaa acttatctta aatatgcgat atgt 274

```

<210> 1242

<211> 102

<212> DNA

<213> Ctenocephalides felis

<400> 1242

```

tttgatcca ttcattttat ttacaactta ctatgtaatg taaattaaat gtgaatgnga 60
ttattataat aagtgaatg gtttggtatt caatcacatt gt 102

```

<210> 1243

<211> 193

<212> DNA

<213> Ctenocephalides felis

<400> 1243

```

ttcaaaatat acaaattcgt atatgttatt tattntatat caccaattta tacataagca 60
tgggnaaaat tcttacagaa ttactgaaac ataagataaa atatgttcaa aaatatgatt 120
gacgtatcac tggcagcttt gtaatattaa tattgaacga tatgccatt gcaattgcga 180

```

aatatattat agt

193

<210> 1244

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1244

```

atcgaatag tcttcagcat catcgactgt naccacacaa ggtggtgctg atatgttngt 60
cagcgttttg agtaatccca aaagtaaaac cgctgataat gtaactgcta tgatcaattg 120
gagagatcta tcttgatata agtttcctac taaccaagca cctcgccatg aattcacaca 180
tataaatcca taaacagcgg tgtagacca cgaagatagt gcaaaacatg tgttagattt 240
accttctaaa tatcttttga tcggtccttg tgccaagcaa aatataaaca tccaataaaa 300
gcctatggcc aaagacacga aactgctata tatttcatta tctgtataaa cataatgtcc 360
cattagattc cagtgctctc tccaataccc gactacggcg ggcgcaacca gtgtagagc 420
aaatagagca tccaaaacat caagaataac tgatgatttc aaaggattca tagtcatcaa 480
tgatcaccgg aaggtctc                                     498

```

<210> 1245

<211> 112

<212> DNA

<213> Ctenocephalides felis

<400> 1245

```

tttttttttt ttttttttat aaaataatct tttattccaa acgtttcgac attcaatttn 60
gngtcatca tcagtgata ttgaacatag tattttatat ctaaaaatgt gt 112

```

<210> 1246

<211> 379

<212> DNA

<213> Ctenocephalides felis

<400> 1246

```

aaccgttggc aaatatcaac ttccacatca tcancaaatg ttttatccca atcaggcgat 60
gaatccaaat gattgaattc attacactgt tcaggctgag tgtaaaataa tgatgttgga 120
ctttgaggcg gagtaaaatg atttagttcc actttatcat aaatgcgttc aaattctcgt 180
aaaagactct cagtgtcttg ttgaataaaa tctgtggtat caaattgctg aggaaatttg 240
gtttctccgc ttagagtttt gttcatacca gttgtagtag acaaatcctc cagcagaggc 300
aaatccactt tctcctccag ccattgagaa aatgcttcat tagtaaagtt atcttccagc 360
aagcacgaat cagcaaagt                                     379

```

<210> 1247

<211> 230

<212> DNA

<213> Ctenocephalides felis

<400> 1247

```
ccttgctgaa actnctcctg atatgggcga tttttttatt aaagcaagcg aaaaaaatn 60
nggnaatgaa tgnctcagta atcttaatgc cgaagcacia gaaaaatttg ccaatagagt 120
caacattata atcaaacaag ccaaaagtaa agggtttggt taacataata caaaatagca 180
attagaaggt ttagaaaggn ttaataataa ctaattttgt acctcgacg 230
```

<210> 1248

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1248

```
catctattaa ttccagtatg gtgcttnctt gcaacaacat cctggatagg aagtcttctg 60
attcaacctc cgcgtctaaa ttcataagtc cactttttcc atcttttagga ttagttaaat 120
tcgataacaa gattttttaa aacatctgta attcaagtaa atcactaata aaaaaatctc 180
tatgtgctgg ctgctcaaga atacttaagg cttcaaacc cagcaacc gatgattggt 240
caatttcatt agcatcatct ccagcaataa natcaatctt gaactccttt tcttctattt 300
tatcattaaa atatgcaaac ataatttctt cttcagtttg actatcatca aatgccactt 360
catagggcag cttatctaaa acaacacgct tcggttcctt gcagtgtatg aattgataaa 420
cggtcgtggt accaaattca agaatatgtc taacaaccgt ctatgcctac ctttacattt 480
cttttatttt tgaatcct 498
```

<210> 1249

<211> 290

<212> DNA

<213> Ctenocephalides felis

<400> 1249

```
agtatcagta ggagtgttat gtgcaaattt ntaaatcgng tatataaaat atatatggta 60
tagattaaat gaatcagaac aatcttaaga gccacaaggt gtatggcatc tagaggatac 120
cgagaggata ctaaaacgaa atgatagatt taaaaagtgt ttccacctta tatgtcttca 180
aaatatgtaa ataaaaacat cttgaataaa ataatttctc aatgttngtc tgaaattgaa 240
agttgtgatt aaagttatag ttactagatg aaaaaaaaaa aaaaaaaaaa 290
```

<210> 1250

<211> 345

<212> DNA

<213> Ctenocephalides felis

<400> 1250

```
ttaaataaga caaagaaatt cactccacca nttccctata ctatcccttt aaagcccttt 60
ngncacttca acgtccacat agntttccac agatggcgcc acatagaaat cattgctttt 120
ttataatcgn gttcgaaaaa atcttatctt attgttagtc tattaattaa gagttaagtt 180
```

```

tttgtaaact tgtcaacttg ttttcgggtg ttaatatatta aataaacaaa tgaatgtaaa 240
agtgactgac ttgtcgattc aaattgttat tacaacaaa tcagtcattt aactttgaac 300
ccagtcaatt gttaaaatac atattataaa cacatacacg taagt 345

```

<210> 1251

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 1251

```

ttaaacaacaa gaaaattacn ttcanatatt tttttatnct tagttcagng tgtgcatata 60
ttggttattt agaaatcttt ataaacaata ggacacttac atttcaaan taggtgttac 120
gaataaatta tnatctcttt cactacatat attacaatca acatttatta aatangngtt 180
gantttattt attgtgcaaa taataatatg ctttccatgn tctgtaatca actgattaan 240
ttacttgtat nangcagtnng ttttacctac acatttttagc tactggtaag ctaggcataa 300
cgtgaaangt atatcttanc tcgttttgac atcaaaagcc ttttcanctt aatgnaaaga 360
atggaaattt atgtaataaa ntangagcac cctttccaat cattgggtgat gccctangnt 420
atgccctatg anaatgttgt catcataacn nttntganat aatccgantt tatatgaatc 480
ttntatatgt gcgaatat 498

```

<210> 1252

<211> 258

<212> DNA

<213> *Ctenocephalides felis*

<400> 1252

```

tcttccatca tggagaacat ttggggtaac cntaatctta aagtattcaa cccaataaaa 60
ggcagaagtt gtatagcaca cacnatgatg cantttttca aatgtggtgc ataaaataaa 120
ggcttgaatt gtttgaaacc agctttaaga gcttccattc cttcaggttt gggagaacca 180
tcttgtncat tggttttggg ttctttcacc agtngtttta ttggatattc agtcttgtna 240
ttccaatgat taatcctg 258

```

<210> 1253

<211> 364

<212> DNA

<213> *Ctenocephalides felis*

<400> 1253

```

tttttttttt ttgttcattt tgtntgaact taagnatata tnttnaggga aatttcaatt 60
taaatnatcc gcnatatatc atacatgtaa ggcaataata cataatttaa ttaacgcatt 120
aaatttaact atgtaaatta tgtannngtg atttatctac aatgttttta acataatata 180
tttaaaaatt catggaaaaa tnatctctaa nagctaaata tantaatatg gaaagcctgc 240
gctntgcttt agcatattta taaatagcat ataataattn ataatanatn ctntanttag 300
ganatcattg ataatcattt attcttgtat tacgnnaata taatagtaaa ttacaaatgt 360
tngg 364

```

<210> 1254

<211> 318

<212> DNA

<213> Ctenocephalides felis

<400> 1254

```

cttaaaaaat cgccccacaa tagttaaagg canttggacg atagcaacta aataacataa 60
anggtattat ataaagattc caatcaatta tcatcgtcac cgtcgctcgc agccacaaag 120
aagaaaacca accagtgact gatgatccaa cacgatgatg atgatgatga tgatgatatg 180
tatatatgta atgttttacg gtgttaattt actattatcg gacgaatcaa gattttattt 240
attaagatat gggaaggtag tcacaaatat ttttttntt aaatngatng tnncccatc 300
ccaaaccaa ccaaacca                                     318

```

<210> 1255

<211> 312

<212> DNA

<213> Ctenocephalides felis

<400> 1255

```

gtatttggtta aataaaaaata agtcacatct tanttctgcc aataatatta aaaatgcaac 60
atntatccag atgcaactaa ctgaatatca ctttcaacaa ctcaagacgt acagatgtta 120
cgataaaaaa acagcccaca ataaatcctt gttgcatatt ataaaataga tgcttccaca 180
ttggttaataa ggctaaataa aatccaacat caccagacc aggatatgat ttgaatatag 240
caattaaagc tgcgagactc gttgctaata acataggctc atgtttgaga cgaagagaga 300
gcggaagcaa gt                                         312

```

<210> 1256

<211> 135

<212> DNA

<213> Ctenocephalides felis

<400> 1256

```

aaaaaaagtt atactaaaaa aaatttactt gactgagcac ttagtacaaa aaagttatac 60
taaaaaaatt tactcgactg agcacttagt acaaaaaagt tatactaaaa aaatttactc 120
gactgagcac ttagt                                         135

```

<210> 1257

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1257

```

tcaaaaagcc cttatacgat tcgtatacac nttctttaaa tgttcgctat atatttatnt 60

```

```

tccagtaatg gttttaataa aattatgccg atctacattt tctaaacatc ggcaaaatta 120
aatcacatta taatgttaac ctttcaaaaa aatactgtcc aaaaagtatc acactttgat 180
ctacaaatgc aaaatggttg aaatcaagtg aagcaatgtc atttatacat caaaagccaa 240
ttagagtca cttgtgttca ccactttgt ttataacatc gtcaatcaag gcggataaca 300
acagtgttta ttgtaaataa attatttcta ataaattgac aaaccatcgg gtaacaaaac 360
aaaaaagtta atactgcttt tcagctttgt gatggttaat ggttatgctc gaataaagca 420
ttgactgtgc catcaagaaa gtatactngt ttccattagt atttcgattt attccaattc 480
caatcatatt atcacaaata                                     500

```

<210> 1258

<211> 485

<212> DNA

<213> Ctenocephalides felis

<400> 1258

```

tacttttact ttgtaaaatg taaataatag gantcactga gacttaaatg atccattggt 60
attcatacaa gttaatgata tctgtgaggt atttaacgag caaaattatt ttgattctta 120
agaagtatga tgtttatagc cttcttaaga agttatgata ctgttatagc cttcacactt 180
tgagaaagat aatagaaatt gttctcacat aaatattact cattagcagt ttaacttaa 240
aatgaaattc ttattcaaatt ttgaataaaa aaaagttgca tcaaagtatc acagtataca 300
acaatattag aatcgatata ataaattgtg ccaacattct gtgttgccac tgatatcatt 360
attcatttga aatatcaatg gaattatcaa ctgaatagag aagtatttgg ctgagcttaa 420
tataatacta atagcgagat ctgaaattaa caaagttgaa aactaaatag tattatttta 480
ttagt                                     485

```

<210> 1259

<211> 232

<212> DNA

<213> Ctenocephalides felis

<400> 1259

```

tgtaaacagc actttgcctt tgtaggtttt atcgaaggct tcgctcaagg ttttgatggc 60
tttggtgagt tcagtttttg ctttgcgggt ttcttcgggg gatttgaaat ttgttgctaa 120
gcggaagaag aataagctag gacgttcac aggggttagt tctaagactt tgtcagataa 180
aagcgttgag gacaccaggt ctttcacaaa cttctctggt aaatcacttt gt 232

```

<210> 1260

<211> 371

<212> DNA

<213> Ctenocephalides felis

<400> 1260

```

tactttataa aaaaaaaaaat caaatctaga ccaaccaatg atgagagtat agcgcagcac 60
cattcaatgg taaaatttat attttagaaa aaattactta aagaataata ttgtattgct 120
cttcagattt atcttcagaa atctaatat attttgaaaa tagcattgcc aaaacattac 180

```

tagccaacta tttcaatagt cagaaatgct attttcaa atttaagcaa tatgcaagtt 240
 attttttttg aactgataag ttcactcagt caatttcccg atttataagg tttcaatata 300
 atttgttaac ttcacttaac ttttaatctg tatatgaata ttctgcatat ctttctaata 360
 atctttgaag t 371

<210> 1261

<211> 401

<212> DNA

<213> *Ctenocephalides felis*

<400> 1261

tatctgtttg atgaattact agttctgctt tgttctctac tggttccttc aaatttgaat 60
 atgtcaaatt tgggtgtanat cctagtgtgt tattacttat tccttgattg ttgaaatct 120
 caataatttc gattttatcc aaacttttgt cacagtcaaa atctggtaaa atctcttcat 180
 aacgtttgtg aacataagaa tcatgatcat cttttggtt ataattaata atcgttcttt 240
 ggtttatttc cttgtaagca aaattatttt ttacaggcgg cgtttcgacg tcgttatatt 300
 ttgcattgct taaaaagctt gtatcgacaa aatccggaat tgaatgagaa tttaacgttg 360
 cgttgtgaga tgaatttaca aaagggtgat acacacttg t 401

<210> 1262

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 1262

catcaccgag aagaactctt cggctacgga ntntcttcat tggaggcgcg ttgttggtgc 60
 ncgcagcatt acttttggat ttagaaataa attaatTTTg gattaagaaa aaaaaatta 120
 aacataaata taacgatctc tctacaaacc catataagtn ttcattttga ttcttttagc 180
 ctttaacttt attttatatg aaaaactcat atttcttctt ttgcatcgga ggctttacat 240
 ttagataaaa gaaaacagat tatttgactt atttaaagaa ataattatan ttcagaaaaa 300
 gaatatttat tacttttatt atattcatta ccgtttatta tgattggttt taccgagcca 360
 aactgataat aacatgcatg tatatgctta tatagtcgca cagtttttta acattatcta 420
 ttatttagtc gttaaatttt aataacattt atttatttat ataatttagc gccgcaatct 480
 ctaatcaaaa ttacgtga 498

<210> 1263

<211> 452

<212> DNA

<213> *Ctenocephalides felis*

<400> 1263

ggcacgaata tttgtcttca taatcattac ccgtcttctg atattgagtt ttagggatca 60
 acttcttcac ataattctca tttataaaac gttggaacaa aactccaaat gttgttttcg 120
 ctttcgaatg tcgaaatagt gcataaaatt catcgaagtc caaaaaccgt gaatgattag 180
 agtcacccaa actcataaga tactgagtcg cagattctgg aaactcatta ttatattcac 240

```

ttctctctac aattctttgt aattctctga cagatatcaa gttatcatta tctgtgtcat 300
actttcaaaa tacaattaat tattgttaac gtgcatacat aaactttgat ttattataat 360
tttaccttcc cgaataggta tctgatatat tgatcagttt ccctcaacgg tatattatat 420
tccatctcta attgtgatat ccttctctga gt 452

```

<210> 1264

<211> 490

<212> DNA

<213> Ctenocephalides felis

<400> 1264

```

tttttttttt tttttttttt tttttttctt tactagatgt ctttattcct aatcccaaaa 60
tattatatgt cgagngtctt cttttatcag aaggatcgac atccttcaat gcacttttct 120
ttccaaaaat gcttaatctt ttagttctta atttttcaga gttatgagaa tcatttaagt 180
cactgttgat tttttggttg atttcattaa tactggctaa agatctgcga cgcatagaat 240
ccttttcggt atcatttagc aaatgaatgc catttggaaga ttcgtaata tacaaagtag 300
ccattgtttt ggctttgaaa tatcacttat tgttatatat cacttattag tttacaataa 360
cactggtaaa acatagcatt ataagttttt gggtcacatt ttcactcaca aacacgcggt 420
cagtatccgc gcgagtattg tgaaagcaac agacgaaaca ctgcggttaa atgtcacacg 480
gtgttttcgt 490

```

<210> 1265

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1265

```

tctagagata ttttagttgc agttctgact gtgattatit taatatgtct tactttacct 60
gctgcattta taatttacia atatggcata tacgactgga tttgtagaaa agttaatggt 120
aacagaatgc tacctcgata tgaggatgtg atgataggc aagaagatac tgacgatgat 180
cccttgccat aagtgaatat tataatttta tttttcttg atctccttac aatgatgtag 240
aatattgcct tcaagtcata tgttgtaaat agttttacia aatgataatg ttatttatct 300
attgaatata tgtatgttta tgtaatttat ttaaataatta atttattaac agatgatgac 360
tagaagtcac aattgtgtta ttgaagttgt tgcattgaaa tgaattatit ttaaatagat 420
atattcaaat aacatgaaat aaattttgta tttgtgattg gtgaaagtga tggaaatatt 480
ttgttgaata caagcata 498

```

<210> 1266

<211> 311

<212> DNA

<213> Ctenocephalides felis

<400> 1266

```

aacaattctt tgttttaata tcgatatata atcacgattt tagtttatga tatctttatc 60
tgggctcatt gtgaagattt catacaaaa tcgatattaa aatattgata acttcaataa 120

```



```

taactgtaat ttccatagat atttgcaaga taatcgataa atctatcaat attatcgata 180
aatatatttt ccccttttta gtcgaaagta ttatatagat tctattaaca caaaaacaca 240
cagacacaca aattagttta agtttagacg acattccggt gaaaaaaaaa aaaaaaaaaa 300
aaaaaaaaa n 311

```

<210> 1267

<211> 453

<212> DNA

<213> *Ctenocephalides felis*

<400> 1267

```

ggccccgtac cggaagtgtg agctggcaca ttgacttaa cttcattttt atcttcatac 60
tcaattatat tttcntttac catttctcca gcagaagggtg tcacattctg tgtttctaaa 120
tttgtatttt gataatcatc actaaatcta tttcgggacg gagaccgcga tctgcttctt 180
ctacctctta attctttcct tgtaacaaac tccaaaaatc cttcagaatc tggcatcaca 240
acaggttctt caggttgtga atccgcttct tgcacgcata attggaaaat tgggtgtgtt 300
ttgggtgttc cagctgaatg tttttcaaaa atattcgatt ccgtgatttg tggcacttga 360
gaaggcaatt cgctattagc tttgatacca acaatagacg cccatgatgt cagttttggt 420
tggtcaagta gactcacata gcggttggtc agt 453

```

<210> 1268

<211> 498

<212> DNA

<213> *Ctenocephalides felis*

<400> 1268

```

caaaggggca agcaccacct gggaaatttn naaatgcaga attgatgaaa attccaaatt 60
tcttgcaatt aacaccgcct gttataaaaa gacagtgtga ggcgttaaaa cagttttgca 120
cacagtggcc aaaagggttta gaatctgaag aaaaacaaaa taaacatttt cctgttacag 180
taattagttc tgattattgt cacagcggtc cgactataag aaatccatta ggtagaattg 240
ttactttgaa ggtcaaatta tcggatttac cactagacaa gcatgctcgg gataagtttt 300
tacggttagt tggtgacaga cacgatcctg atacagatat attaacatta gtagttgata 360
gatgtccact gaggaacaa aattatgact atggcatgta tttgctgaca gctttgttcc 420
atgaatcttg ggtcactgag ccttggaag cagataaatc tgaggcggat atggaatatt 480
acgattggca aaataatg 498

```

<210> 1269

<211> 285

<212> DNA

<213> *Ctenocephalides felis*

<400> 1269

```

tgctgctttc tgctagttag gtatttgctg tttctaattg agtatttggt gaagtattnt 60
ggcttaagggt ttgtgattcg gtgaggtttc cattgctttc attcacgttt gaacttggag 120
cagttgtgga tgggcttatt tcatcattcg ttgactgtgg ttggtcgtct ttaacgtcac 180

```

tgtctgggaa agcaatagta aaagtatgat tatgagtga tttttatttg ctgactatt 240
attattatct tactaagcaa acgcctgggc ccagggtcag tctgt 285

<210> 1270

<211> 498

<212> DNA

<213> Ctenocephalides felis

<400> 1270

tagagccttt ccaaaaagtt gttactgagg aagatttgat aatgcgccta gaaatagtag 60
cttgtgattc aacttgtagc aatgtaagac catgtgagct ggctcttggt ttattatgca 120
cccaacttga tagctgtgtg tctcaattgg aatctcatac tgctcaaacg atgcttaaat 180
tggttgattt tgctattcac atgcagaaac agtgcaggat tcctgactcc agcttcttca 240
gttgtcacgg ttgtgttgtc aacatactgt cgagggtataa caatcaagat aaaagtccac 300
acaggcaaag acttgtttgg aaattatctt cgcgcacatt gaaacttctt cgaccaacag 360
atcgtcttac atcacttctg cccactattg atgaaaatgg atgtctacca aggcttagaa 420
ctggcagtgt gagtctgtg ggcagtgaag atactgaaga ttggcccacc agtcctcttg 480
gtcccgttgt gagcaatg 498

<210> 1271

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1271

ccaanecggtt ncanttggnn ntnnnccnat tttnaattgn angggcccgg gncntagggg 60
gtaantttta ttggnatttg ggcnttnat gacngngcan tnagcttctt gacnanttct 120
ttttacacat atttttanaa tgatcatata catanttagg tgggcattcn aaaacctgac 180
ctttaccatc tttgcagaan aagnatnttn tgcnttcttt tcgnatctgg ctgatctct 240
acaaccgccg catgtanntt ctgccgtctt acagctttcc ccagggtttt gatgagcaca 300
tattattcta cacaaaatgg gaaccatttg gaaatttgan tccttcttca aattgattgt 360
angaaatttg ggggtttctt tgcncnacc cacaactttt aaaagnaaaa acaanctnna 420
naaaaaagnt ccnacttg ttattnaat ncnttgggcc cgtaccnccc ttaaacccaa 480
ttttgtgnata ntcnnnanaa 500

<210> 1272

<211> 157

<212> DNA

<213> Ctenocephalides felis

<400> 1272

tttttttttt tttttttttt ttttttnga tnggtngaac tttgtcactg antataatgt 60
cttttgcac ttttattana ccaatatcag catagttgac agtaattttt ggngtatatt 120
tatgatgcac cacaaaacgt tcgacgtcgt agtatgt 157

<210> 1273

<211> 235

<212> DNA

<213> Ctenocephalides felis

<400> 1273

```

tttttttttt ttagttttta taattattgt agatcaacat gttatattac tttgcatagn 60
gngatatcgg ttactaaata ccagtatgtt tcttcacaaa ttctcttatt tctggatcag 120
ctagtcttgt aaatacattt ggatatggaa aacttgtgca atttctagtt gaaaaagctg 180
tcaagcctac taaaacccca ttttcgtcaa cgacgggtcc accaaaatca cctgt      235

```

<210> 1274

<211> 400

<212> DNA

<213> Ctenocephalides felis

<400> 1274

```

acatcaagca taattttcaa aaatgggtcca agaaaccgaa tgcaaattaa atggatcctc 60
aaaccccgag gaaactaatg tgattcacgg tccagccgag cctgccaacg aaggtttgag 120
gggcttttga gaggaaattt atgacagaat agttttacat ggcgatagag tatccatgat 180
cgacggagac accgatcgct ccaccacctt cgacgccctt cgggcacgca gtgcagcaat 240
cgctctagcc ctaagggtc gtggagtgc caacaaagac gtcataactt tggtagaact 300
caccacagaa gactcttttg ccattgtttt ggggataatt ttctcaggag ccacttttag 360
gatgttgat ggagcctgga cagtcccaaa cactgctagt      400

```

<210> 1275

<211> 343

<212> DNA

<213> Ctenocephalides felis

<400> 1275

```

ccaggatata atttgtgaga taattataaa ctattgtaaa taaaacataa tttaattatt 60
ggaaaaaata tttgttaa atttaggata agattgctca agtcataccc aggatataat 120
ttgtgagata attataaatt atattatctg ctaccattaa acttaagtta ttgttaaaca 180
aaactaataa attgtgtaag caaacgtttt taattggtag actggtcaat tttatgaaac 240
aaaaataaatt aaaagtttg taaagtttct gctaattttt tttgctcaat tgtaagcatg 300
ttaagtaagg taggtgtctg ttttaataaa aaatgaaat tgt      343

```

<210> 1276

<211> 204

<212> DNA

<213> Ctenocephalides felis

<400> 1276

```

ttacgaattg attttagagc attcaaatcg gatgctctgt tctctcaaaa acttaatttt 60
tattttctgc actctttgct tcgtatcttc gaaatagctg gatcggcctt tgccaaaaac 120
taatcagcac atctccctat caataggaat cgaatttttt tttgaaccat tcaaattggt 180
tgatccgtgc gtccgaaaac gtgt 204

```

<210> 1277

<211> 150

<212> DNA

<213> *Ctenocephalides felis*

<400> 1277

```

ttctatttgt tgggttattt tatttcagct atgaattata tatctttatt atttaattaa 60
gttttttaat aatctctttg aaaaatttga taaaatgtaa tagaaaatac aaaaattttt 120
tgaaatattt agcttcataa aaaattccgt 150

```

<210> 1278

<211> 337

<212> DNA

<213> *Ctenocephalides felis*

<400> 1278

```

ccnnttcgaa agtggttaact tatcggatga gcnnaaagctt tactaattga attgattgct 60
agagcttgna aaaatattgc agcagaaata aattctctta aagcgtagc ttacatggtg 120
aagttcanta cctctcgata acaaaaagaaa atgcnnacta cgtaaaant attcaatttt 180
tttaaaaaaa nntgggttgt ttgctttctg anntgtgctc gttgggggcc cccctggcgt 240
gggggccccg tatttttgat acngctgata cggnggtaag ttacgcccct gatctgcatt 300
natatacaaa ttttaattta aaaaaaaaaa aaaaaaa 337

```

<210> 1279

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1279

```

aatttatagt tgtgtaaaat atttttttta caatcggttc aggaattaat gtaacgttca 60
ataactaata cgctgacaag cggatcgatt taaaaaacgc ttgggcacat atgatttttg 120
gattctagga atcaaaataa gatactttgc tcaagaaacc atacgtntaa agtgaattct 180
ggttaatgaa acgttcggtt ttcacccatt tcagctgatg gtaaattgga caatgacact 240
actagctctg aacaaaatac caaattaaag accgtagaaa aatgcaagtt acctgagaaa 300
ctggaggcat taaccatcaa attgtaacag gagtagtta aaattaaaaa aaaatgttat 360
atctatctaa gattttttgt gaaacgaaaa tcgattatga tgaaactcag ttgctcttgt 420
atacttatgt cgattgatat acaattctgt acatacataa tatgaaatta tccaaatatt 480
aaacaagtgc aatttcaatt aaaaaataa acgcaatatt catgtcgtt caagtcaatt 540
cattactga 549

```

<210> 1280
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1280
 cgctgtttta atgagcggcg cgataaaata aatntgttga atacatggct attttaaaaa 60
 tcgtttttat atgaaaatta aataaacact atatatattg cgcttatatt gaaacagaaa 120
 atactatagt tcaatgagtt ttattaaaaa tattgaatta ttttacattt ggagataaat 180
 aaaatggttt ataattatat gatatacgca tgagtaatta tgagtttgcg ctaaactca 240
 atcaccactg tgtagattca gctttaacat agccaatcca actgtaaaga gagaaggaat 300
 aatgatagg ataaatggca ggaaaggatc aacaaatgcg accatacata tattccatca 360
 taataatgag acatacgtaa ataataaggg gagggaaatc ataatgggat tgagaacatt 420
 aataaaattc aagaaaactt attaaaaatt ttcagtgtgg tgtcttctgt cactctctac 480
 aaaggtagta aatctgagga ggtcgtatca aggataagaa atcactaaga tgaggatttt 540
 attgcaaat 549

<210> 1281
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1281
 cgggttccga agaagatgat caaatgattt tcgactctga tagtgatgat ggccaaaaaa 60
 cctcacagga aaatatatta acaaaaaata ctaacaaatg gatggacagt ttgccagctt 120
 ttgtttttga ccctagcata gacgctaaac aaagatccaa attgatagaa aaggaaatga 180
 atgaacaagc aaaaatcatc catgacttga gaacattggg tgcactctca ggaactatag 240
 aacatgaaat gagaagactc catgaattgg aaaccttaat ttttaaagat tttcgaagag 300
 atatgataaa gaaactgcgt cgacaaagta tgcgcacaac agcaatcaag gataagttgg 360
 gttttggtca acacagtact cttagaagtc gttacccgac tattgaacaa aatattcaaa 420
 tgaatgggtc ggttctcgag acgattgcga gtggcgatat cggcggagat ccagcccagg 480
 tggccatccc gatctgttct ttaaagtgcc gggcagcacg tgttcatttg gagatcccta 540
 cgttcttag 549

<210> 1282
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1282
 ctgtaggctc gtgttcctcg attctaataa aataacagtg tcatttttta attaaatga 60
 ttttaatttaa acaatcagtt atgttaattg ttagttaaat ggatagtttt aaacagtga 120
 caagtgttga agtggttaagt gaatcagtcg atttaagtgt gtatgaatga aatagtgttt 180
 ccatgttgat taactggata cagattttac tgaagacagc tggggaaaat atggcgttct 240
 gtcagtttgc aatgatgga taattattaa actaaaggac ccggcataat gaaacctgaa 300

```

aatccacaaa actaccacat gaaaatctaa aaatttttagt caatcttaac gaaaccaacc 360
aaagcaacaa aactatgaaa aatccaacaa catttccgct tgaactgtca tctaaaccga 420
atcttttagat ttcgtagttc aacatcaaac cacttcaaga catctttcta atatttataa 480
ttcacttata cgcttagaca agacaacttt ctatgacggc tcgatttgtt ncaaattggtt 540
gtaaggcat 549

```

<210> 1283

<211> 383

<212> DNA

<213> *Ctenocephalides felis*

<400> 1283

```

agcnttaa at aacaatttca aattcaatat gaggaattta gtggttttcg ggtagtggtt 60
ggtagtttta ttgttggtta caatggcaga agacacacca gatgaaaatg agaaattcga 120
agtgggaatg tcagaggttt ctttgaatga tgtagagcca gcaccacgtg tagtatgcca 180
acttgaggga aacagattat gcaatgctcg gtgcatatct ctaggaaaaa gaggagggtc 240
gtgcaaaaaa ggaacttggt actgcagaaa ttgaagaaat ttaatatagc ataatatatt 300
agataaactt tgaataaaac cgtgttaaaa attttgcgca aaatatataa tataacctaca 360
aattaaaaaa aaaaaaaaaa aaa 383

```

<210> 1284

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1284

```

gcgcatcgga gcggttcctt aagaaacatc tatccgtcaa tctatcaaac ttgtaaccgt 60
taaaaaataat tataagagaa taccttaaaa taaaaggtag ttttcgttta aaatatcctt 120
aattgtgaac tatgtgataa taagtgtttt aagatagtgct ctatgttaat atttttgatg 180
acgagaacag aataagagaa caaaacggga tactaaaaga caagagcttt gtttgacacg 240
acagttgacg gagactagaa tgcaattgtg attttgaata tattaatttt taaaataatt 300
agaaacaaaa atgtcgacca aagacataca agctcagaca aatgggggatg ctgacatacc 360
tcagcggcga cccaacata ggggatgttg tagcaaaatg ttatatTTTT ttaaagtTTA 420
ttggagaagt tttgtaatag tattagcacc aatattatta accccggctt tcttgtaata 480
atgaaccgaa attccggtga tgatgtagtt atgtaatgct gatattgggt accgaagttt 540
acctctcca 549

```

<210> 1285

<211> 541

<212> DNA

<213> *Ctenocephalides felis*

<400> 1285

```

gttgctgtgg gtcttttact tttgggtctg gtgatcgctg gacttgtcaa ggccggattt 60
ttcaagagga cgactaaaga agaattagaa gcacttaaag aggctgatca gagtgcacca 120

```

```

ggaataagtg aagaggaggc tttagcgcac agccatgatg ttgaaaactc atctgaaaaa 180
gaagaagctt aaactgtggt gaatgcaatt tcaagttgta aaatttttgt gctttttgta 240
tatagatatc tacaaatatt tcgcagaaga agtataagaa tgtttgagaa tatttgaaat 300
caagagaaag ttgtgtcata atcataaacg tatttagatc ataagtagta aacattcaaa 360
tatcacttaa gtagtgtaaa tatgagactg aaagtgaacg attaagcatt tttatattta 420
aagtcatata atttatttct aagattagat atagaatatc tgtgatgaat aaattccaaa 480
cgatatatta taaattatta ataaatcaat tctatataaa aagaaaaaaa aaaaaaaaaa 540
a

```

<210> 1286

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1286

```

ccttattgca ggtgtgatag tgaaaaatat tattttataa tacgagtttt attcttgtca 60
attttaaatt tccggtatgc aatatgtatg cattcataca acaaataaat taccggtgc 120
acaattatgc agtgctgtta tttaaaagat aatgaaaatt gcataataat tagaaaaat 180
cataaacata ttcattagtc attttgtttt tatgtgaaaa atatgtgcat aaagttgctg 240
ctgaatagaa gtcggatttc ctcaataata tagaaagaaa tggttcaggc tgacccaacg 300
tgcagcctct ggctggacaa aaacattgac agcagacgag gatctgattt ttccgcctg 360
gacttcgaca cgagttcaat gtttgaatcg aatgtccagt tgtcaagttc attagatgtc 420
atcgactggc aaaaactaaa attccaaacg gctagtatca acagaggatc gctgaggagc 480
aaatcatttg tataattaga ccaaaagata cacattaatg gaaattcgga ggataaggga 540
aagattctt

```

<210> 1287

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1287

```

gggccaagga accaagccaa aggccaagac ctacaggtgc agctggtgaa acctttcctt 60
ttcctacaac atccatacag aggtccgggc attctatgga gcgaccgcga ggggaaacaa 120
ttaggagata tccaggtaca actggtgaac gccccgccac gccaatgaca agaacaccac 180
agagatcccc ggccgcgcgc cccattagga ttataataac tccggtcagt aaaccctcgg 240
ggccgcgacg gccccaaca cgtggcagaa tattaagtgc tggccatctt gcgcccccta 300
caccggtgta tcggcgcagc gcctctaagg gttcttcgcc cagaagaaga ccagaaaggc 360
ccagtgaagt tatgcaaccc aaaaggagac gtctagaatg aaacatccca tttaattgct 420
gaagagcttt ccatattatt tgagagtcaa ccaagaattg cagcagcagc ttcgcagcag 480
agataatgtg gtcccaaaac tctgcctaga caatgacacc ttcgaattca ttgcctact 540
gaataatga

```

<210> 1288

<211> 384

<212> DNA

<213> Ctenocephalides felis

<400> 1288

```

atttatttat attaatatat tttattgggg tgataggaaa atttataaaa cttttttttt 60
attaaaaacat aaataattga ataattgac cataaattat gattaaaaga ttaagttact 120
taagggataa cagcgtaatt atttttaaga gaacatatcg acaaaataga ttgcgacctc 180
gatgttgat taagataatt ttaaaatgca gaagttttaa aatttggctt gttcgacct 240
taattcttac atgatctgag ttcaaaccgg tttaagccag gttggtttct atccttaatt 300
ttttaaaatt aattagtacg aaaggacctat taatttataa taattatttt aatttgaata 360
aaattaaaaa aaaaaaaaaa aaaa 384

```

<210> 1289

<211> 548

<212> DNA

<213> Ctenocephalides felis

<400> 1289

```

gaccactggg cttgttctcg aacaggactg gcagtcgaac agcaatgatt ggttttagt 60
gtatcgattt ttatatctta acatatgtgt aaataaagtg atatttaatt ttttatatgt 120
acatatcaaa caaagaataa taaatgatgg aaattgtatt tttgttttct aattcatatt 180
tttttaaaact tctgtaactc gccctcgtat gttttatttt acatgtacga ttctgccaat 240
gcttggtggt caccacttgt ctgcaatgaa taaaaaggaa tacctaagac cgtgcgtggt 300
tcgacttgat ccagtaacca tcactaatat aaacctgcca ctgcatttta aacaatcgag 360
cggaatcaca taattacggt accatttgca agcgttttta catatgaaag gaaactgttt 420
atttaccata ggcattgtag acataaggta gtaggattaa tcgtgtatcc ccagagttta 480
ctgcaaataa acttttggca ccacctcaat gagaagcaat tgacttcact tgcgactagt 540
ttggtttc 548

```

<210> 1290

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1290

```

ctggtttttg gtctaacagt attaatcgcc atcgtcagt gacttgtaac aggtgtggtc 60
ctgaaatatg cttgtgctca agttgaagaa gaacataggc acgacgattc tccagcatgg 120
gaattacctc atgatgaaga aaaggcggaa aatcatcatc aaaatgttgc tacaattagc 180
tgaatatttg ttctaactat attgtatgag actgttcgaa aaatgaagaa agaaagtga 240
gcacaattta aataatttta aaaatactaa aatatctatt aatgtagttt tagtgtaatt 300
actgtgcttt aaacacaata tttgatttta tattgattta taaaaaatat gttttaatat 360
aatgtcataa gaaacaacta atttgccaac caatttgtca attgggtgaa tagaatttaa 420
taaaaattaa tgtattttta ttcaaaaaaa aaaaaaaaaa aaactcggaa atatataggc 480
tttcgatgtt gatgccaaaa cagaccggtc caatctacga gcccttttaa ggaggagta 540
tgggccaag 549

```


<210> 1291
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1291
 gctttttcga taactcaatt tttgcttcaa gtaagcttaa gaatttttga aaagcttggt 60
 tgagtcccaa gtaagcttaa gaatttttga aaagcttggt tgagtcccaa gtaagcttaa 120
 gaatttttga aaagcttggt tgagtcccaa gtaagcttgc gaaatttttag aaagctaaag 180
 ttaaaatttt tgtttcaatg tttcaatggt tttgaatcat tcttatcgga tgctcctttc 240
 tcttaaaaaac tgcaattttt tcaacttggtg ctccgtatct tcgaaactgc taaacctgcc 300
 tttggcaaaa agtaatcagc aagccagtac aaatcgaatg tttttagaat cacgctcgga 360
 atcgtagacg aaaaattttt tccaaacaca cacacatata catacattcg atttttcttc 420
 agtatgccat aaattttataa agaagacctt gactcactat attaaaaatg ncatgtgaga 480
 tttttgcctt ccctaaagaa ggtgtaaaat taggaattta tcatattctt ancagagcgc 540
 ccttactga 549

<210> 1292
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1292
 atacagcaag caatcgggtgc cagtttgtct aaatacccag gacctgaaga aacttttgag 60
 gctcttcgaa tattttgcag aggagacttc ttaaaattga ctctaggatc attgacaagt 120
 gtgtgcttca aaacaaatca aacaaaagct ttgaaattcc tcaacgacaa ctttgatcaa 180
 cctgtgtctg caaagaaaca cataataaga ctcatcaacg ccatcgggtac caaaaatgtg 240
 attttgaaaa tgctgaaaca actctgggat tgtgagaagc atccttctat ccgtaatgtt 300
 ttaataacgt ctgtcttcaa ttggtttgcg agtgatcccg atgaggaaat atggaatttg 360
 ttgaaatcta tattttttaga tctgacgacc aaggataaag atatattcac catgcttctg 420
 agtttcgcc aagtcgacaag gattatttaa aggaacatat tgaactttgt ggaagacgca 480
 acaatttgga gtccaggata aaatcaattt ggatgatgag aagtctaaaa tctgcacgcg 540
 taacgaaga 549

<210> 1293
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1293
 gtgaagtgat gtaaagaacg tatcattttt ttattacttt tattgattaa caagtgtttg 60
 atttcggttt acattaaact acaatttatt gacggctcgtg gcggctcgcc ctagtgaaat 120
 ttttgagttg aaccccttat atgtaacact gatactgcac ttatatttat tgatattgtc 180
 tgtattttta catttttgtt tcattattaa aacttaaaaa atgaatgtcg aagttacgcc 240
 gaactattct tacgtctttg atttcgaaaa tgaatttatt catcaagaaa cgagaaattg 300

gatgactaaa aattggacat ggggctttta ttattgtgga atctacatgc ttgtaatttt 360
 tgggggacaa cattacatgc aatcacggcc aagatttgag ctccggggcc ttctgacagt 420
 atggaatgct gnctagcaat gttttcgatc gtggtgcctg ccggacagct ctgaacttct 480
 cacgtgctgc gcactacgga ttgtccatag cgctgcgacc aagcttcacg gacaagacgg 540
 tagcggttt 549

<210> 1294

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1294

gtaaaatatt tcaagaaacc tgagccaatt ccaaattatt gtgacacaag tgtaagagt 60
 tcttctcttt catcgagtcg agaaagtggc cagaatggat ctaaaacttc agcaggcagc 120
 agaagatcat cattaataaa gaaggaaagta aaaaataaaa aagattccaa acggacgagt 180
 ttgtcttctt accaaaccag ctctgaaatt ttgagaactg aaagggaaat attgtctcaa 240
 aacttggaag atgttacctc tccgctggaa actttgatcg aagagccgct aaataacgat 300
 ttaaaaggct ctaatacaaa tgatgcacca caacacgtgt ttccggattc tcttgaccaa 360
 tctcatatgt cgtctttaga acctttaccc gattggaaac ctgttatttc agatgaagat 420
 tgtcgatcac tttcaaaaat ggtggatgta tattggacga gtttcagaaa gggtatggaa 480
 ggcaagggtg tcagatggac aatggaacat atatcaaatt atttagggag aattttgcaa 540
 tcttcaccc 549

<210> 1295

<211> 547

<212> DNA

<213> *Ctenocephalides felis*

<400> 1295

naaatnntg tggcaaatga aatgagtgcg aatcggtgnt taaagcatta aatcgntaa 60
 ttagttattt ttttgtatat tgggcttgcg ttttaacgnc ccgangatct natttnnttg 120
 nacaataaaa ntgttnattg nttaacatta ncaanttaaa antatctgan tcttgncttt 180
 aaaatgacan tntgtatngg tgctggtacg tggggccaaa gtgtttatgg tgcaatgcgc 240
 acgttaatcc attntattgc ggcaacacaa tattggntg cttgttacta tgattggaat 300
 tttgnacacg tncngnagag cgttcattgn atgggtaatc cgttcggtgg aaaattcaaa 360
 tatctgacat ttattgatgc cgatctgcaa gccttatatt tcaactgttg tgtattaaat 420
 gactttgctg gatcaaatga aactcgnna ngctaaatcc ttctgcagtc tgaaagacnc 480
 atgatgcagc attcgcnttn ctgntgnatg aatgnggant cattttggac cntnngcttt 540
 gacaggc 547

<210> 1296

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1296

```

attntaatta accataactt attggtatgt taaatcttta aataaatctt atttaattat 60
atztatcaat tatttataag aaacaatttt aaaacattcc ttcattatta taactgggat 120
gaccggaatg aaaatgtag cacctacttt gcatttttca catgataact agcaatcttg 180
tgaggaattg tattagcct cagtaacca tgaagcgccc ttttgtaaca caataataat 240
gattcatcct tttctactgg ttctagataa gcttgagag gataacacaa cttttcttca 300
gggcaattta aaactcttaa taatccagaa tggtctgacc aaatttgctt tctccaacaa 360
atgtcgtggc aatgtgctaa cggaactagt acacaagctg aaaacatttc atccccataa 420
ctaacagctt gataatgtcc agaagttttg tatatagatc agtaaaactg cttagacctt 480
gtatggttg taaagcaaac ggtgagtagg ccaatttgaa attcttcgaa atgcttttagc 540
aacagaggt 549

```

<210> 1297

<211> 464

<212> DNA

<213> *Ctenocephalides felis*

<400> 1297

```

tгнаacacca cattagcaaa ttcacgaata ttingagttgt ggacaaacta ttaagaaaat 60
aatgattaat tatttttctc aagattcttt aatttgatac taaaatgttt tgctccacaa 120
aatgactaaa tatactttta aaaaacaact gactagaata tattgaaatt tacattcgga 180
tatattttaa tacttactag accacaaaaa ttttgtcaa agtttgtcaa aaatattttg 240
tatatatttt ctggaatctc gacagtgaata acgctggatt tgtgctgcct ggtagatttt 300
ttcttgaaaa ggtgatatta ctctatgat ttgtatttat atgaaagtgc tttatattat 360
tttaatgatt ataaataata gtatgtatgg gatattatat aattgtgtat atcgatataa 420
ttgttgcttc aataaaaaat atttttaaaa aaaaaaaaaa aaaa 464

```

<210> 1298

<211> 547

<212> DNA

<213> *Ctenocephalides felis*

<400> 1298

```

atgtgtttat tattctaacg aacatgcaca gtgattctaa tttatatggt cataaaatgt 60
agaataaata aacaataaat tctttgataa atatagtatt tagctttagt atccacgtgt 120
cactaataat tttaaatgc gcatgagtc gaaactgata aaaggatgcg gtataaaca 180
aattccttca gtcacgcggt aacaattgtc agaataacac tttaattctca ttttttgatg 240
tgaattactt tgtaattaat cgcgtattct acaaatcacg atgaaagtta aggacttgac 300
attcattaga gaaagactta cattccatt agttttatta tggcttatcg catttcctgt 360
tcgagctatc gaaccaaag aaattctttt tatcatcctg agtcaaccaa atacttatag 420
ttcaagttta gctgaaagtc tgcgaaagga tattttaaga caagccatcg atctgaataa 480
gacgccgcaa taatccacct ttcacacctg gattatccgc agcatcttca tggccgtctc 540
cttattg 547

```

<210> 1299

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1299

```

atataaagca gacacctccc gaaaaaccgc ccgcctatga actgtttgcg cccctgcct 60
atgaaacggt tgtgaaaggg gcagacttaa atggaaagaa caaaggccct gaatgcactg 120
tttttactat aagttagtaa aaaacgagtg aagtaaggct acctgtttat ggccaaatca 180
aattaagata gaagaccaag agtcctttgc actttggagt tacttgggt gttcagcatc 240
tggtggactg atttggccat ttgcagggcg ctgagccgag agataaaata aaaaatgtgt 300
gactgcaatg ataaatgttt atcaataact tatccagaaa gattatttag gatctttatt 360
gctgcaaaact ttttcaaaag cgaaagaaac tctggaaaat cattgctaatt ttatctctgt 420
gatataataa attattattc aataattatg cttgtagttt tttcttataa atatgaatta 480
gataattaat aaatataagt aactgtagta ttattaaagt cttntttatt agcaaaaaaa 540
aaaaaaaaa                                     549

```

<210> 1300

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1300

```

gaanaatgaa tctctatcta gtagaagtat tactactgac gacttgaag ctgctcgaaa 60
atacatgtct agcgaatcgc caataaggca gggatttgag ggacgaatca cgttcatcaa 120
tcttgcgcat cctaattcat cagttaacct gcactcatca attggaatga tatcatttat 180
attctttatt gtcttcaaac atttttgtac cttgtaataa aaacatgtat atttagatta 240
agcaacaaaa tgtaaactcta tttttgtcac aaaagacatt aaccagtaat taatatgaat 300
atttaaatat ttttattagt actccaaatt ataaatttgt gacttgaagg tttaaaagta 360
aaacaagaac tttgtgtgtg atcaatcact ttattaagaa aatatttgtt tttttgttgt 420
catatggtgc tcgctatatt gtaatcaata tgtatttatt gattagtata tttatcactt 480
atttgtgcta attattgatc ttatgatata tataatagaa atgaaaatgg ttcacaaatc 540
tcattaatt                                     549

```

<210> 1301

<211> 320

<212> DNA

<213> Ctenocephalides felis

<400> 1301

```

gtgcatacgc gttacatatc aaatgaatat gaattttaat tactatacat tattatttgt 60
tttaataaagc gcgccttaca taaatagcgc caaattcaca tgtctcacgg atggcgtgaa 120
aaaggaaaca tcttgtgcag cagattcatg tttctttta tacaataaat ataaagggtgt 180
gcgggagtat ggttgcataa taaaaatgac gcagagccaa agaaaatact gnttccgtca 240
tccagaatta tgctttanct nccaccccgga aaaacctgta attcaatgaa actgatgaaa 300
ctntgccgcg aatgcctcac                                     320

```

<210> 1302

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1302

```
actggaaga caatcaatca aaattcataa aaaagttata aaaagttaga aaaatgggta 60
caaaagtagc actgttagtt cttgctgttg ctgtcgccca agtttcctgc gatggattaa 120
catggaagta ccatccatct ctttcagcat ttatgctgaa aggtaaagac gaaatgggta 180
aagattgttc agtcctgga gaaataaagt gccaggattg tgagacagca aacctttgca 240
ttgcgattgg tgctgatttc ttagaaacaa cattggaaac atgtccgagt ggaatgactt 300
gcaaaccagg tacagggttc gtttaggcct ctgaaaatac attaaactgt cctgatcaaa 360
ctcctcccgt agacaacagt tttgtatgcg aatctattgg tattttccct gatctggaag 420
actgtaagaa attccatttc tgtttccaaa tacagaaggt gttaaagctt ccacagaagc 480
tttacctcat tctgaaatta aaatatgtcc atagaagcaa tcaaaagtca gaccagagtt 540
gcaaaacaa 549
```

<210> 1303

<211> 417

<212> DNA

<213> Ctenocephalides felis

<400> 1303

```
gttaagagct gtcaaattat tgtacaaata tttctaaatt aaatacgtat atataattta 60
ataaataata ttttactact atgaaaagag ccgcaaaaaa ctttctacta gaccgtctgc 120
acaaaggcgc cgtcatggcc tgcatgggca tcaccgtttt gggaacactc agtcttgat 180
tccgagttta tcaatacttt actgatataa aacctgaaat acaaagaaaa caaatattgg 240
caaagaacga gctgttaaaa gaaggagcct cggacatatc attatacgag agcaatatca 300
cgttaaagga ataactccta ggatagtaga tatatttagt actgattact ccaaaaatgt 360
atgttatata atgtaaataa gacttataat ttatttcaaa aaaaaaaaaa aaaaaaa 417
```

<210> 1304

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1304

```
gagccatctt atcaaacata tttaataata atttataata aatcgtgcaa agttttcatg 60
ttttaattaa aataccgatt gaggtaatac gaagtacaat ggtggataat aaattagcag 120
gattaacaga ggaaaagcta cgtgttttag taaaacaatg taacaaatgc ccgaaatgta 180
atgaaatttg tctagaggat tttcccgttg ttcaatgtag tttgaaccac agactttgca 240
agacgtgctt tttggcttcc ataaatgatc cttgcttcca gtgcactaag ggcagcaaac 300
catccgctaa taaaaaagat cggccaaagc agccaaatgc cccagacaat tctttccga 360
aggtaaactg caaatatgcc agtgacggat gcaaaatctc aaaaaagaag gacaaaatta 420
gatttcacga atcggaatgt gtgtttcaac cacaagaatg tctggaaaat tcaactgttta 480
```

tttaattgta ctggccgga tttcaacgca tgctaccttt gtgagaacat cattaaatgg 540
aacacatga 549

<210> 1305

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1305

atanaatcag tgttgacaaa tggtttgagg aaaatgagaa aaatacctgt cacaaaattt 60
tatattgcaa aaaaccaggt gtagaacaca tgtaatacta gaagaatggt taaaatgcag 120
gtgaccattt caaaggaatt tgaatatgat aaaatatgca tagatggaac tcatgggtaca 180
aatgcttatg gatttaccct gcatactctt cttgtaattc atggggcagg ttatcaggta 240
gaattttgtt tcacaaatcg gcaagatgaa actttattta aattattttt tgagaaaatt 300
tttgggcaaa gtaggaaaaa ttgccacctc aacttttatg tctgaggatg cacctgcata 360
ctacaattca tggatcatctg tcatgacttc gacaaataac catttacttt gttcatggca 420
catatcaaga agctggaaaa ggtacttaa tacaaaagta gacaaagaag tagatcacia 480
aagcagacaa acgttttcac atcttattaa gaatcgagtg agatgatttt tggctaagtn 540
aatcttatt 549

<210> 1306

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1306

gcttatgttt gttttatttt tgacgttgct aaaatttttag ctttaatggt tgttttcttg 60
tgataaatta gttttatttt aaaggctagc gcataataat aatgatgcat ctgagcgctg 120
acatatctag tgacttcag caacttgaga gcatcaagac agcaatagat gactcccatg 180
atccaaaact tcagctcagt actaatgaag atttggatat gataataagc ctattgcaag 240
atccagtttt tcgaagcatt gttactactc aagattcact aggtgaattg aattcccaaa 300
taacacaaca tccatcaata ttaccaggag attttgatat aactacttca ggtgatctaa 360
ttctgcggtg ccccttctc ttgatttata tgataatgag tacactgatg aacaaagagt 420
accctctgac aattaagtcc aggtagccct cagaggttag gtatagcatc ggtnggggca 480
gtcangggaa cattacattc atgaaggat caatntngca atgaggcaac cntgatggat 540
attccaca 549

<210> 1307

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1307

atatttttca atacgtgtga aatatattat atgggttaaca tattttattca tcttgttttt 60
aaaataacta atttgctatg aaactaatag taaacaaaaa agttttttat gccggcatta 120

```

aaccagacaa atttttgtga aattgaatta tttattttatt ttaaacaatt aaacttaata 180
aaaataatth cttttttttt aaataattgg atgaataaaa aactttttcg tttactgtta 240
tatctgtcgc catctgaaat actattgctt taggtgtata taaatatcta tttacatatt 300
ttgcagggtat ctgattaata ctaatttttg aatcactggg ttatttataa aatatttcac 360
atttttaggt tctaacagca cnacactttg ctacatttat tagtaaagt tattaattaa 420
ttatgtataa tactttgatt tcaactaaaa ttttgacgca aattgaaatg tgcttaagtt 480
tacaagcagt ggccggacgt tggcaccat cctgacttgg ggaggaagac attgtgtaca 540
nctcatgag 549

```

<210> 1308

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1308

```

aataaatcat tttcaaaatg gtgtccaaag tgtttgttgc tcttgccatc attggcttta 60
taggggctgc acaagccttt ttcgaacaag atgccgtctt agataagatg gtagatgaca 120
tctctgtctga atatgagaac agcattgcaa gaattagcca agatagcaaa attgatatga 180
ttgccgctga attcgaaaaa caaggatttg cccctgaagt cgatagagat ttggagaggt 240
tcaacaaaga agttgaaagg aaacttagca aaaaagttag tgaagccgca aaggaatgcc 300
ttaaaggcca acacaaaaaa gctctaggct acgcacaaga agcccgtgct aaggtaagg 360
cttgagagaga tgacaaacgt gatgaattca accaagttcg caaaatggct tgccgctgga 420
gagaagccag ggagaacgcc gaagccctca gagcacaagc caaggagtgc gttgtgaccg 480
cagccgtgtc gatgaagcca gagtttgctt gaaaggggtt ctccaagctg cccgaagagc 540
aaagacttg 549

```

<210> 1309

<211> 445

<212> DNA

<213> Ctenocephalides felis

<400> 1309

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attgcatgga agctagactg caagtatcat cggaatgta tggagaagtg ttggagaaat 60
tcaatataaa aatagagatt tttcaaaaaa gattagatta ctatcgtaaa agagcattat 120
tttctatgca attagttcat gatctaaca tatcagatga caagaactta gaaaatttgt 180
ttcttcaatc tcgcttatta tatttgcaag gcaataacaa atctcatgaa gaacttatta 240
agtttattag atctccaagc aaagatgcat attttgctaa tggaactagt atattaaaag 300
gatccaacaa tgaaaatctt gccatattag ctcttaataa cattggagtt attgaatttt 360
ctcttggtca ctttcatcta gcaactcatt cacttcaaca gtcattaaat agagatattc 420
aactggtataa aaaaaaaaaa aaaaa 445

```

<210> 1310

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1310

```

atgtatcaag ttatatTTTtC ttttgtataa taattacatt cgTTtagtta agcaacttgt 60
ttctagtgat aattgtagaa aagtgtagaa aaatgacacc tgcattatat cctgggatga 120
agaaacgtta ttttatgtcg atttcttttag atgacaaagg aggtaaccaa atagcatatc 180
ttacaaaatc tgaggacaat aataaggatc gtttagcaag tcggttgaga agcggatcga 240
gaatgattgt ttgaatataa gtcgtacaaa attggaatga aacgatgaac aatatacaga 300
tcttttagaca ggctcaaata atgtatgttt aggagcaact tgaagataat ggagatttat 360
cttcttaata taaaacctct aaaattggga acagtatgtc atatatgcat gaacttgatt 420
gatgtattga tgtataatga actgaagata gaatgaattc aatcaggtta aaaaaaatgt 480
tggtcaaaagc gattcgattt agatttgctc ctgatataaa acttccagaa gtcacatcat 540
atgaatatc

```

<210> 1311

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1311

```

ttgacaagtt tcgatttggt tagttcttgt acttaatatg gaatcaatct catctgaact 60
gactgaacca caaacaatt ctaattcatt taccgttgat caaatagaaa ttgacatatt 120
gcccactata tatgatatac tacgaagtgt tgaaagagat ccacatgata gcgctggcaa 180
aaccagagaa tcacaagatt gcagtgtgaa ggtattagac ttacaaaaga agttagaaaa 240
aattcgaagt caagttactc agctacctgg aattgattat aataaagagg aacaacttca 300
atatttagaa acacttagga aacaattaaa acttaagcaa gagcttttgc acaaatagag 360
gactatgtac acatttgatt caatgaaaat ataaattgtt taaaatgcct ctgcatctc 420
tcatgaatta tttgctgaat aacgacgttt agttcagaag ttgctgaatc ttatccagtc 480
gaagagctgg cagttagcca tttcgctatg atagatcaaa atcaatttag ggacacactg 540
agaagctgg

```

<210> 1312

<211> 423

<212> DNA

<213> *Ctenocephalides felis*

<400> 1312

```

aattnattta aagtcgaaat tccaatttgt tgtactttat aagagtaaag caatttcact 60
cacatctata atgtgtatac atgtattaca tttttatttt attaccttgg aatattgaca 120
ttttgaatga aacattagta attttgttgt ttaaattgctc acctattaca gtaataactt 180
gtatgtatgt tctaaacctt tttaaaattt agaaatgtaa cgagttatgt ggatatttgt 240
gatctatgct gaatgatact atttagtgga caaaattgca gttctgcatt aaccttttgg 300
tgagaatctt gcaatccaat attgtgtagt tttagtttat aatgtacata taagcaacct 360
taatgtaagc attaatTTTaa tcaataaaat cttttctata tcaaaaaaaaa aaaaaaaaaa 420
aaa

```


<210> 1313

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1313

```

taatatTTTta ttgtaacaga ggcaaaatct agaaattatg ggatgatttg tgataagtgt 60
gaccacatta atggaaccag agttttaata aacgcatttt gaaccacaag tacaatggga 120
tgaacttaat aacttctgga attataatca ttataaaagg tggactcatt tatttgaagc 180
tctatgtaaa atcctgctct gattagtata actactgcat ttcagaatgg aaaatgggtgc 240
taagaagctt gatataaaca agtataagct ggatgtgtca gatttagcaa agcaaaacta 300
ccgacaaata attgaaaata aatatagcag tagtattcca aataaccaag aggtgcaaaa 360
ctcatcaaat gcgggttctt tgatgtcttt gacaacaata tctatgtcat cttcagacaa 420
tagttatcaa ttatctcaaa attgcgaaaa agagctagtg caagaaaatt ggatatatac 480
tattttccag ntggtnctct ttatgatgct ggatnggaca taggtgcagt gcataactcac 540
ctcgccaca                                     549

```

<210> 1314

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1314

```

gtcacaaatgt gatattttatt tttatatTTTt aaaataagga acatgctgga gcaagaacat 60
gtatcattaa atttaccgga tattaaggag tccgttactc atagaaaaag catatggcgt 120
tgggtggaatc aactgtccag atttcaacga agtctatttt atatgatagt attagttcta 180
TTTTTTacac tcttatattt attaccaagt caacataatg gagatggaaa aactatagag 240
catatacaaa taacaccaat tgaagcaaat aacttaccat ttttacaAAA tgatcaagt 300
gtatcaccta ttaattttaa tcaaaattca gaaactaatg gcttagattt agaaaaatca 360
attaaagaag tgaggaaaaa tgtgattgat gaacaaaaac accacactga ggcaatctat 420
ttaaaaagta gtcttgggac tagtcatggc aaagtttttg tggccaaaaa cagaaagaca 480
gaaagcagtg tgaagccttc aagctgcttg gaagggtta aaacattgct ggggcacgcc 540
attaacct                                     549

```

<210> 1315

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1315

```

attaaattga aaacttcac tcctaaatga tggTcaatgt tacataaaat tgtataagat 60
agtttTgtgt aaattttacg acgctttgat aatttattaa taaacattaa ttgatatcag 120
agtagagtca aatcgatata taatattatt ttacctactt ctctggaata caaatttatt 180
aataaatatc gatttcagtt acaagctgat cagtagtata ttttctgtgg tcaaggattg 240
tcatcatgtc aactaaaata atattattat ccgcattgct gttgctaata tcttccactg 300
ccgtccaggc ccaagtatgc agttgtgtat gcatcacaat atgctgcacc cccgaacagc 360

```

```

tttcaaccct cgctgtccc caagcgagc agcagcagac ggcctgactg tccaaactca 420
ccctcctaaa aataatgctg atgcttacct cgaatacata caggcacaaa atattttaaa 480
tcagtactta catcaacagc agtgcgacaa tccaaaaagt naggaacaaa aattcttggc 540
acagcagca                                         549

```

<210> 1316

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1316

```

gtttgcattt tcattgtttt tgacgcgaaa aataaaacta caatgctgtg acatatatcg 60
ttcaagtgtc aaatagcaca taaaaccgta tttaaatgaa aaacctctgt taacaatagt 120
tggttgtggg ttgcctatgt cgtttaccta ttccccctgt gcaaaccocg ggttgtggga 180
atgtgtaaga aaattagtaa aatgctcgga acgataaaaa ttgtgcaagt gaaaaatatg 240
ttgattaatg tttaattatt actgtgaggt gaaattgata attctgtatg aatttaaaat 300
taacggattt caatatggaa gtgactgata gtgatacgaa ttccagcaat tataaggaga 360
cgaataaaaag tgaaccatcc aacacgtctc ctgaagacga tgcaactggc tgcgaagatg 420
aggacgagga tgagctctac cttcaacttc atcttcatgt aaatctgcc aactaaagcct 480
cacttgattc agcatgctca agtatccagc agtcctcaac gttgaaatag gacttccgct 540
ccgaatgct                                         549

```

<210> 1317

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1317

```

gtcatattat tattgaaata gaaaaactaa ttgttactaa ttaactaact gattaattca 60
ttgattgttg gaataactat ctgaaagaac aacgctatgg ctgacgaagc actaaaattc 120
ggccaagatg gacaaccttt gccaaagtgg gaagaattat taaaaatgtt agaaggaaatg 180
gacatgtccg aggaagacaa acagagcctg agggattctt tgcttcaaca ggcaaatagg 240
gctgcttctc aggacccac gggggctact ggggtcacat tccaacaagt cttgttcag 300
ttggccatgg tggcgattat agtatcagtt ttgcatttt ttgcaaataa attatacaaa 360
tctctgacgt acaaagacag aatgcgtgaa gaaaaaagga aagccaagga ggagagaaaag 420
aacaaggaaa agaagaaagt caagtagtca ttttgaaaac gacaagactt ttaaatccat 480
aattattata cttaccata gttcagtcag tcagatcaaa acagtntgat attaaaataa 540
ttttccgta                                         549

```

<210> 1318

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1318

```

aacaaacctt cgtggagggt ttgtttaata tcatccagcg cgcagcaacc tcaaagaaca 60
tgacagaaat taaagtctga cactctggac atccaatgcc aaaggggatt tcgctcagtg 120
ccctgcacca gccgtatgca gcccgggacc agggcaaaact tggcatgcaa accaggattc 180
cagttgctca aagaaccaga gttctcgcaa attaatgctg gaaatgatgg gatttgggat 240
aattgtttgt tttcttgca accagaatgt ggaaatccaa caccaattga aactgttttt 300
aattcggaacc cacctgtaac gtacttagca ggtcaatatc catggtatgc aatgttgttt 360
acccgaaggg aagattttatt caaaggacaa tttctattca gttgtggggg gtcaataatc 420
aactcacgaa tgatagttac aactgcttat gcgctcataa gccagaaatc gattggatga 480
tcagagagtg tgtggatcta gtgtattcgt ttaataaaca gagatnttat gctagcntac 540
gaatagaaa                                     549

```

<210> 1319

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1319

```

gaaccacctt caagaactcc atatgagtca cagtacgctc gagcatctga agaagaagat 60
agatcgcaat tagtgtttat catagttacc tctttattct tctttatcat aatatgttgt 120
atcattgaag tattgcgaac aaattatcaa cataaaaagc gaatagaaag agaaactgac 180
gaaagtatca taattgcgaa agaacatgca actaagctgc acgaatcacc agctgttggc 240
atgaaatttg gtggatataa agcggtagca actggtgaag atgagaagaa accagttacc 300
aacggaactt taccaaagat tgaagaaaag tgtgacagcg ttgcagacct taatggatcc 360
ataaataaat ctttagatca tctaaagccc cagaagtagc agttgctgat atcaacacct 420
gtattccaga aaagaataaa gacttttatg tggatcagag aaagcagctc ttagatcatg 480
aactgcagtg ggactcatgg aagacaagga tccagcagac gtgatgcaga gcggnccatc 540
gaagaaacg                                     549

```

<210> 1320

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1320

```

atgatctata aaccctcaaa ttcttaagta aaactgtaat agtatttttaa cttataatta 60
ttagagaata ttttatatga aaaaacatgg aatttattat ggcaataaag cgtgatgcaa 120
tagtgaaaaa aacatctaag tgaaatcaga aaacaacaac aggaataaca ttttgaatca 180
gtaaaaataa cggatgacac ttcaagggtg cccagatgaa aggggtgacaa ccccggtgcc 240
gccgtctccg ccccgattc cgctgcagac ttatctttgg gaggacgta gaagggaacg 300
aaaaaaaggg ggctaccctt ggacgcactt cgtaagagg cctttcgatc ctgatgctcc 360
acaggaaatt ttggagtacg accggtcccc aggcagtaaa cgtaaatcag gaagcctaga 420
tgttcaggaa ctagaagagt ctccgagtgt cactagaaga agaagagcgg atccgtggag 480
agtctttggg aaacgaacca gacttacggt gatccaaaca caggagtaaa tcagtantat 540
agaagacaa                                     549

```

<210> 1321
 <211> 384
 <212> DNA
 <213> Ctenocephalides felis

<400> 1321
 tactaaaaat aattttatca ttttcaaaat tattgtgcgc atgtatttaa gggtaaaatg 60
 aaatttttga gttcgattgc gtcacatgta tataagtatt attgatgcgc cccctagagg 120
 ggttcagtgc aggtgaacga tgttatttat ttaataaag ttgcaatgaa tgacgttaaa 180
 ggacttgtgg aaagaaacta ctacttataa ttagtgaata ttatttatta ggacgaagta 240
 gtttttattg tctccctaatt ttatctttgc gagtttagtt aattcaaaat atatgatttt 300
 agaattattt gttactttaa aaaacatgaa agaaatctgt atttgaataa aaagatacac 360
 aaacatcaaa aaaaaaaaaa aaaa 384

<210> 1322
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1322
 aaagtgatgc aacaattatt ttcaaaatac aaaagtgtta aaaaatgggc gttaaaaata 60
 tatatttata ctgcattctg atatgcctgc tacattatgc atcttatacc aaaactgaat 120
 ctattacca caattctttg gaagaattgt acacaaacac ttctgcaaaa acagattcca 180
 ttactctttt atcaaaaacc agtctacdcg ctgatcaaaa tgccacgatt gaaaatcctg 240
 atccagtgc tctgaaaag ggctccgctg aacaagaaca acacagctcg atgtctatat 300
 tcttcgtgct ttgtgtgctg gctttaggga ttcttttaat tcatttcatg ttacaaacag 360
 ggtttcagta ttacacctgaa agtattgttg tagttttctt aggtgcttta atcggcttga 420
 taattaattt aatgtcgtct aaaaatattg caaattggag aatgaagaac cttttcacc 480
 acagcgtttt cttagtgctc tccgctataa tattgaatcc ggtatattgc ataaggnatt 540
 ttttcaaat 549

<210> 1323
 <211> 29
 <212> DNA
 <213> Ctenocephalides felis

<400> 1323
 tgtcanggct tatcgatac ccgtcgacc 29

<210> 1324
 <211> 550
 <212> DNA
 <213> Ctenocephalides felis

<400> 1324

```

ttttaatttt caattcaata ctttgcagga tagattttgc gataatgttt tattatatag 60
ctgtaatggg aaatagcaat cgtagtcact tcatcctatc atcatgtacc atggaatatg 120
agaatatatt atgtacttct gcaaacagtt tcctgggtgc tcctcagctt atattaagta 180
gtaaaatgca gtagatgagg tattgtgacc aaaattttaa aaaaatatat tgcctattta 240
ggcaatatga tatggtaccg gcaaagtgtg tttagtacat ttcaggtatt tttatataaa 300
atttttaaac gtgtacctca aagagctgcg ctatctataa tgttccaatg atgtgccgta 360
ttgcatacaa tgctggtgtt tccaaatctt tgagaacaat tgcattaaat agtcatgttt 420
gaatggatac ttttgcggcc ttatgaacaa atgtgggaat tgcaagcaat aatacttcta 480
gagtagaaat tatgctctat ttttgtgngc acatcttaga ctattgagat ctagtagatt 540
gctgaatgag                                     550

```

<210> 1325

<211> 491

<212> DNA

<213> *Ctenocephalides felis*

<400> 1325

```

atcttaatgn attaagtgn aattaatata agggaattta atgaattaca ttttgaaaat 60
gagagcaaaa ctactttagg atacattttt tgactaaatc atgtaataaa tttaccatgg 120
cccattggaa aatttttctg atactatcgt ggcgattaac gtgttaataa ttttatagtc 180
cctagttcgg gttaaaataa aaaaacgtgt ctcatattta ctattcacct atattnacca 240
cttcatttac ttcttgatc ttcttctctt ccatatccga tcttcttgat tcttcttctc 300
ttccatatcc gatcttctcg attcttttct tcttccatac ccgatcttct tcattcttct 360
tctcttccat atccgatctt ctttattctt attctcttct atatccgatt ttcttcattc 420
ttcttttctt ctaaatctga tctccaattc tgctcttgct tttcttttca tttattcttc 480
gggcatttgt g                                     491

```

<210> 1326

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1326

```

ccacgggata gcagtattat tgatgcattg ttgagcagtg tacgcgagtg caagtgaagt 60
attagttgaa caatgtgaaa tcatttctag aaattttatg tgatattaat aatattgttg 120
tcgtaatgga ttcagaataa tgtaataaat gatctttatt tgatgagatt attaaaaatg 180
aatattacaa cattcacgca atcaagtaat ttagaatcaa tccaatcagc caattaacaa 240
aatcgacgaa tatttttcaa gttttattaa tcaaaacctt aaaaagttga taacaagaca 300
aatgatacct acgagcaatc aacaagtatg cctagaagag accttccggt gatcattgat 360
gactatgaat cctttgaaat catcagttat tcttgatgtt ttggatgctc tatttgctct 420
aacactggtt gcgcccgcgt agtcgggtat tggagaggna cgtggaatct aatgggacat 480
ttgtttatag agataatgaa atatatatagca gttcgttctt ggcataaggct tattggatgt 540
tatattttgt                                     550

```

<210> 1327

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1327

```

gttcnnncgc ccacanacat tttcaaaatg ctaaaagcan caacaataat ttttatcgct 60
ttcaattttg tgtctggtgg cgtttatgat ggttacaaac ttacgaaat aagaccccaa 120
acaaaatccg aggcttacga tttaatggaa tggcaagtaa aaccaggagt cgatttctgg 180
tccgaagcca ggatgctcaa tcaggctagc caggttatga tctcacctga acttcaggag 240
gaattcgaag gatatctggt caatggtaat tatacttgga aagttgctga ggataacata 300
gagagacttt tacaagattt tgaaagaagc agaaaaaagt caagtgcccc acgtgacgat 360
ggatttgatt tcaatgatta tcaaagatcg caaacgatca acttatacgt aaacaaattg 420
ccaaaacgta tccaaaatat gtgactgtta aggatgaagg aagaagtttt gacagcgaat 480
catcaaactc gtccaattac agatggatca attccaaaaa caagcgcgat ggtgatcgct 540
gtggtgccat                                     550

```

<210> 1328

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1328

```

ggcaaaagct cttgaaaagt tcttctgcga caagtgctag tgtagaaaag ggcaaagttg 60
gcaggccgag aaggagtaga gattaactag tgaaaaaatg atattaagag aacattaaat 120
aatatcagac agtgattttt tccataaaac aatcgactaa tgatttgta ttctgaatta 180
cttttcagaa ctgtacattt tgtttaaagt ttggtgaagt ggtgaggact tgataaaatt 240
ttatttaaca atgtttttta ttcatagggt agtttaaata catatatgtg taattaaaat 300
attatttaac ataagatttt tacattatac aatattatat aggatactag cattatttca 360
gtaaatgaag gcatactgct tttgtgattt tttaatttta tggatcatcat ttacatttta 420
tatcaagtta caatcgtagt taaatattta atttaataata taagattatt atcattagta 480
ttagaatttg taattgagta gacaatcagc aaagctgtgt gattcgataa acattttgaa 540
tgnaagtaat                                     550

```

<210> 1329

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1329

```

ggaaactctt aaattctctg atttaaaata tgaagaaaaa gatcttcata taccatctct 60
tcaggaggtc aaagaagttc tatctggaaa gttacctaac aatttcactc atgtctctgt 120
tgatatagtt gagtgccctg atttaaccgc aaaaaccatt ttgtctcgct gcaccagggt 180
tgagtggaaa tctaatttta ctggaactag gtggggctcc ttatctctta ccaattgttc 240
aaagagaaaa aatatatgat ataaaaaaca ttgctaagtc ttggacttg agtccggttt 300
tagctatagg agctggtgca ggaccatggc catatgctgg tgtatgttgt gagggtat 360
tcaatatgca cctagcatct gacggtacct tgaacaacaa aacacacata gctactgtta 420

```

acatggaaaa tagtgcacgc gtacttggaa cggccaaaat gatgaacacg ttgtgcatta 480
 ttaggaaatc tcttctgctg aagacatgcc ggatctgttt gcgtgtcatt gngcactagc 540
 atggnctaaa 550

<210> 1330

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1330

gcgcttcaga attatcgtaa ttgtcgaata aaatatatac tttataatac attcacatat 60
 tgnatattaa tagttttaat tttaaattta ttactaaata gttttaattt ttaataagt 120
 gtgatacaag atttagataa gagcccgatc gtcccgcccg gtgataacag cgcaacgccc 180
 agcagagact tagcatcgag cgccctcgtc ggttctcaac ccctgccaaa tcgaattcat 240
 tccgaacgca ngagacagcc actctcaacc ctattcggca taggatggtc agactgccct 300
 gggcccangc gtttgnttaa caggggcccgn taaagacgac caaccncagn caacgaatgn 360
 tgaaataagc catccccact gnttcagtta aacgtgaatg gaagncatng gaacctnacc 420
 cgatcccacc ttaagccaaa tcttcaccaa tcttcttnga acatcaattc ctctnngcga 480
 agcngnngtc ccagtagtgn cgacgttata tgtaacaaac ncggtcttaa ggaagangcc 540
 gntctttcta 550

<210> 1331

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1331

atgaagcgna gcgntatcac taataattgn tatatcatca tctaagngat aattaaaact 60
 aataaaaatta agattttttc acttttaatg cnaccnncaa cgncatagtt tcaatgggtg 120
 tgactgnatc tggctttgnt acnattgagt gcnaataatt gatgacacat cgttttgata 180
 aataagaaga tcaaagtatg ncatacaata ttttctctag tatccgggtt ggaaacaatt 240
 taatttatca aaattataat caactttttg aataaaactat gatgacatga tgataagaaa 300
 ctaaaatgat attacataat tgcatacaat catttttcaa cccaatattg nttttatcct 360
 gaaattactt gatattgaca tcatgtctaa attttatttc agcattttca tttgcatcat 420
 gnaatcgtag ttttattacg tattcaaatt taccggtcat ccgtagacca tagtctacga 480
 tagtgatgnc agaagctgct tacactgncn atagtttctg aaaaagcgat aaatctntaa 540
 atncgattaa 550

<210> 1332

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1332

cgcacgtata attttcataa cataacctta aaacaaagaa cattttaata ggacttaaaa 60

```

aaggataaag gatactgaaa attagtgttt aatagggtcga tagagactgn gcgggttcaca 120
agtttttcca ggacattagg taaaggaata gttctcgggtg gattttggat tataacaaag 180
ttaattttta tttttcgaca tgtgtatcgg ttaattatcc tttatcctga ttgngattgn 240
ggttttgttg tagttatatt cttaaaggca gtgtactgtg actgtgaccg cctgtgcctt 300
tgcatgtgtg tgtgtgttgt aagttgtaag agtgctttaa ttggtggaac cagttttgat 360
caagagtcaa aaggaatgac tttgaagggtg cgtcattgaa aacaaaatgc ctggtgcatt 420
tctacatatc cctaaccctt attagaacct aattaaaant aaattaaatc tcagcatcta 480
gatcaaatat gagnacnggg atttcttgta tacagggtcc tcattattac atacattcct 540
ccatactcat 550

```

<210> 1333

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1333

```

gtgttatcaa aaattttcaa catatgatta gaaggngaaa agttgggtgtg aatgatgtta 60
aaatattctt atgataaatg nttttgaaaa gaagcaatat ggatttatca gatatagcgc 120
ggcgtctgaa gaggaacttt gatagctatt cctcatatcg tcgtttcctc attgttttaa 180
tactgtttat tctaagtctt ttatatatgg caccttcagc cttcagatgg ttgctatcga 240
gttctaagcc tctagaaaat tatgaatatc gttgtatatc agacagatta gcagcataca 300
gtttcaaaag tgccgaatat gatgtgaata ttagacataa acctctgcaa ataaatgaaa 360
aagattttat accatatgct ggtaacggtt tctttgggtt ggagatatct gacataggtc 420
atataaatat aaaattgggt agatcactaa atcttcctat attttatcac ccattgggtta 480
tgcactgctg gcaatggaaa tagcttcgaa gctncgttgt tgaatataaa aaaggatcat 540
tcacaaatcc 550

```

<210> 1334

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1334

```

gtataatgca ataaataaat ctaaacatat aaatcactaa attatcgcgt gtcggtcctc 60
aattgcatta gtgaaaacaa attgtgacca tacagctata aaaaaagagc gcgcgaatca 120
ttaattaaag tttggctaaa ttttattttg ttaaataaaa gtatgctctt tattttttat 180
gtgtagttat ctgtattata caatgagggg agaattattaa catttctagt aaaaaaaagt 240
taccggcata aatgtttgaa aatgagtgag cagatgagac aattatccaa tagtaaaaat 300
ctttcccttt ctgtcaatta taaatctcgt gacaaacca taatagagga agctattgaa 360
acaaatcaag taaaatgtca gttgtcgaag agtttaatat ggggatgctt gaatgcagcc 420
attctcgcta taattgggtt gatttaattg acgatgcttt atccgtggca gtgaccacag 480
atgaatgagt tttagcagttt atactattga ctatttcccc tgtgctgtat attatattca 540
actggtagac 550

```

<210> 1335

<211> 466

<212> DNA

<213> Ctenocephalides felis

<400> 1335

```

gtaacttggg aaaagagctg tctcatgcaa agaaagataa agaggctatg gtttcacaag 60
tggaacattt gcataacgaa tatgataata tggctgataa attagtgaag tatgaaagag 120
aacatgtttt taaggccagt ggagaaccag ataaaaaaga tgactagatt aataatccca 180
ttcattttta ttttagattt tttggaattt tttgattcat ttattctcac atatgtttta 240
attttgttta attattatta caaagtacat attcaaacat atttaactgt taaaccatac 300
taatattgct tgtttcctaa attatttaca ttaaatttaa tatatactct atgctaattg 360
tttgtaaga atttgatttt gtgcttaagc attgaatatt tatgtagttt ataaaactat 420
ttatataata aaatttaatc caaaaaaaaa aaaaaaaaaa aaaaaa 466

```

<210> 1336

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1336

```

attattatgg gggattacag cactcacacc aggctcacac atttacaaaa agatttgcgt 60
ctagcttttg gtatggccga ggacctaac ttacctatgc ctgtcacagc gactgctaata 120
gaagtgttga aacatgcaaa acgcttgggg tttggggaag atgatgtatc agccttgat 180
ttcagagcac gtttttaaat ataaatttat atatggtttt ataatatata aaattttaga 240
ctaatttata tatttcacac acagaagcat ataatttaga aattttattg tttataatta 300
ttgactaagc taaaattttg tacttttggg aaattatttc tattaggaga atgtagttaa 360
gttcacgtgt tggataattt gtgtttttaa tgttttacct gtaggtgcaa tgacatgtat 420
tgaagaatag taattttaaatt ttctgtcata attttacaat aagtaaatgt tagttattga 480
tagatgctat gttgcatact atatggagtg nactcatttt atttagttac aaaaatttac 540
cgtatgaatt 550

```

<210> 1337

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1337

```

cgctaaggac cccaggaccg gccctgcatg tgtgtatata tatagatata tatatatata 60
tatatatata tatatatata aggggtggatg ttttcgaatt ttcttgctca caggagctca 120
gggtgcttccg gattgataaa ggacaattct ctgaaagttt tagctctctt aatgggaccg 180
gccgtggtcc cgtggtaaga acgtgggcta gcaaatccta gtccccgggtt cgaatccaac 240
ctcggctcgtt tcgggtatcaa aacagcttga taccaaatTT tcaactgaaa tcatagattt 300
caaatatgat ttcaagtga aatggccttt cgtgggcaaa gctgtagtgg caacacgcc 360
cttggaagta aagagggtact aagatggtat cgctttgaaa tcaaaaagga agtcgaattt 420
gtatctctat acaacagaaa aatgtaaagg ctctgacatc gtgcaccatg attgagtga 480
tttcaactca cccacggcct gccttgagga atattcgtaa agaaaatgta taacagtaaa 540

```

atatgtaaga

550

<210> 1338

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1338

```

catcaagcaa gttgaactca ataaatagga aataaattct ttctttggtt ttgattaaat 60
agtgtttacg aggatataag gataatttca agcagatatt ttgtgtgaaa gttgtgcttt 120
tcaaattcaa gaacatttta gtaataaatt aaactaataa aaaagttgct aatatctact 180
tcggttttac tgcaatttct tggatgctac aaaatgaatt ctaaaatatt gtgtttcatt 240
atattttcca ctttttttct ggctaaaagt caacaaataa attactacgg caactcaaga 300
ctaataaatc ctggcccata caattaccag tatcctcctt taccaccaag gttgcccgcca 360
attaattgtg aaccagtata tgccacagtt gatttctcat acttaagatt catgctggat 420
aaacttggtt caaagtagtt cctaaggata tcgtgaatcc tcaaaacttc ggncaattgt 480
gcaagcttcc anaggcggtt tgattcagga agtgctaata tagtgaagac gacagatagg 540
tttctggga                                     549

```

<210> 1339

<211> 413

<212> DNA

<213> Ctenocephalides felis

<400> 1339

```

caatgattga ctgctatctg atactagtga actaaaatat gttcaagtgc ttattctata 60
aactcaaat ttattcaaag aaaaatcact ttgaacataa attgcaactt attgtgcgaa 120
tcattggtga tatattgttt tccaggcatt aataactatt tgattaaata aataattaga 180
aatgttatga attgtaattt gctctttact attattattt gtaaatttgt gatgcattta 240
aaaatttaaa aatattcatt tgttgataa tatttgaaat gttttatgtt ggaccattgc 300
aaagtgagca aactcaaaaa tgtattaatt tttttttttt gtatatgtac tgccaataga 360
aacaattttt tatttaataa aaggcacctt gaattaaaaa aaaaaaaaaa aaa 413

```

<210> 1340

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1340

```

attattttta gatgatatga tgctataatg gtggaatcca aaattaatat ttggaatgat 60
atthttgagag ttttcattaa ttgtgtgatg tagaggtgaa aagtataaaa aaggcatgta 120
ttaatcaatg aagcatatth aatttttaaca attcattttg ccaaatatga cttttaatta 180
aaattttatg gattaatatt atthtttaaaa tcaatacaat ttcaactgct tattcagatt 240
tacatgcaat atgtttcatt taattttatt taatatatta atagtccagt tgaatcaatg 300
ggaaggcaaa tactacatca tgtaattgtt gaatactctc ctatgtactt ttagaatgat 360

```

```

atggattgaa cgaatgtatg aatgagagtt aaaacaatca tattataaaa ccaattttaa 420
tcaaaacagt catgaacctc atattatgcg aaaaactgcc aaaaggtttt ttttaagttgt 480
tgagactggc cttgtgacat ttcaaaatga tatttgagta taattttata ttatgagtct 540
tccaaaatt                                     549

```

<210> 1341

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1341

```

cgaaaccaac tgaagacgtc acaaactggt caataaaagc ttattaattt ctcgataaat 60
gctattttat caagcgtttc cttgttaa atcaaaattat agtgattatg gatcgatttc 120
ctaaatctct tgaaaatgca attatcgaag cgaaaaggcg ctttgaagaa caaagtgcct 180
tgacgtcaga gttaggacca gcaatatttg acaccgtga tgctgctcca ttgctctac 240
caagagcata tgtaacaggt ccatgtttta gctctgacga aagttcaa acatagtagaa 300
cttctgaatc agcagttggt gctgtcagtc accatacacc gaatgcatta acatcatttt 360
taaatgatcg ttattatatg ggtcacaaaa aatcaaggaa atgttatagt attcaatcat 420
tttcaattcg atgactttga aaatcgcgat ggacacatga agatgtagaa gaattgaaaa 480
tcttttggga taaggtagga tcaagngaag ttatgatgac ttacagggtcg caatactgna 540
gtgtcatng                                     549

```

<210> 1342

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1342

```

aattaatggt cctttcgtac taattaattt taaaaaatta aggatagaaa ccaacctggc 60
ttaaacgggt ttgaactcag atcatgtaag aattaatggt cgaacagacc aaatttttaa 120
acttctgcat tttaaaatta tcttaatcca acatcgaggt cgcaatctat tttgtcgata 180
tgttctctta aaaataatta cgctgttatc ccttaagtaa cttaatcttt taatcataat 240
ttatggatca attattcaat tatttatggt ttaataaaaa aaaagtttta taaattttcc 300
tatcacccca ataaaatata ttaatatata taaattta atattctta aaattaatct 360
atatttatat ataaaacttt aaagggtctt ctgcgcttta ataatttta cgctttttta 420
cataaaaaatt aaattctata caattttatt aagacagtaa tatttcattc aatcattcat 480
tccagctttc aattaaata ctatgnntat gctcctttga cagcaaatac tgcggtttt 540
aatctcatg                                     549

```

<210> 1343

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1343

```

aataaactta ataacagacg tttattcaaa gattaaaatg cgtataacta atttacaatt 60
aatgatgtgt ttgatcaatt aaattaaaaat tcttgggcct ttgcagatta ttagcctatg 120
aaaaataact tttgatagtg acgtatactg cacaaataac tctaaatttc ttgtaaatat 180
tcttgacaag atggaaatgg aaacagatgc taaaaaggac aataaaaaaca tggctcatgt 240
tatgctaaat gaagtcaactg atatgctaga agatgatttg cagccgatcg aacaatatga 300
ttacattgcc ttagatgaat tgcaaccaat ggaacaaggc cttgaacaat atcaagaaac 360
aatggaaagt gaagaaaatc aaagtgaaga acagttgcaa cagcaggaac ctgaagttga 420
agaagtttag tgccagaaat agaggaaaaa ccaattttgt caaactgtcc tctgtagaac 480
aatagctcca acctgagctc caaattaatt gggggggtca ggcagccaat tgtttatcaa 540
ggcctattc

```

<210> 1344

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1344

```

atccataga tcaataggaa tttatccata tcttagagtt ttgaaggat ctgattatgc 60
tgacattgtt ctaagagaag ctctgtagaat tgccgaaggc tctgaaactt acagtccaac 120
agtaaataca ttatatagag atttaggcat aagagtacaa tccaggatc atattgaagt 180
caacaaaca aatggtgttc tggaaaaagt aaatgaaata tatgatcaat attgtttaca 240
aataagtga acttataaaa aactgcaaga tattaattat ttatctgaag agctggattc 300
attagataag ttaagtgtt ttaacacaag gcagaaatgg caactgctgg ttcataaga 360
aatcatgga gcaagcacag atttagaaga agtaaatgct cttattcagt gtgctagctg 420
tggaaaattt tgtacaatat attgatgcgt gatttaaaaa tagatgtaa ttctatgaag 480
atgatagtaa acaaaaagan tgcttcngat tttacactta ttagaaatca aggaaattgt 540
aaagaagag

```

<210> 1345

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1345

```

cagcgatcag atttaccaga cacatctcat tggcaaagtt caatttccaa agatgaagct 60
gcntttgaaa tagactactg caatcctcaa tcaagcaatc aacattcgaa gncaactaaa 120
gataataaca atgacggtac tactgntcca gacgaagatt ttttttcgct cattatgaaa 180
atacaaagtg gaaggatgga tgaccagcga gcaagtataa atataaaacg agtaatatag 240
aactctactt taataattgt aataatattg tatatggatt attagattac ttttaatact 300
agaatatttc caatttttta atatcatttt ttgtggatta catacataga atagtctggc 360
tatcgatttg tactttgact atgaattgtt gtaccttga accgcaacaa tttctaata 420
aaaatgagta gaaggtttat tagcgacata atagtacat tgctataata tagcatttaa 480
atcaaacaaa ttaaaaatgt gattttatta ataggtacta tcataaagtc acaaaagccc 540
ttccggtac

```

<210> 1346

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1346

```

gtggattagt atatcaacct ctatcagaag aaatcagatg tccaccaacg ccaatagtga 60
cacgctatcc aagctatattg agcagtcctg tccatcatga aaaaattacc cccgaacaag 120
tgtagcttta aaatatttaa ttctgtcgca aaatttgctt ggtagtctc catcgtaa 180
tgatttgcaa ataacaatat aggaatttta acagcagcgc tgtttgtaca aactgtagtc 240
aaagagaaca aacctttagg atcagaatta atttatgtta ctttggctta tacattcctc 300
gatcaattta ctttaagtaaa atagtacact gtggatactt caatgagata ttgtcatatg 360
taacggcatg ggtaataaat aatttagttg ttatactgt ctacttaaaa taaaattgg 420
taaatatgac ttataatta aacatattta accacaggaa attagtataa ttagtaatga 480
ttttaacatt acattgcttg aagaagttat gccagctcat gataatatct tattgtagtt 540
tatgataag

```

<210> 1347

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1347

```

gcaaaatag atcaatactg tatatttaac atacacgcgc acatatgcat atatatatgt 60
atatatatat atatatatat atatacttat atgcatataa agcaatatca acatctattt 120
agttttcgat attctgcaaa taataatgat cttaaattac aaatagaata ttacatttaa 180
cagctaagaa ttgacagttt cacaataact gccagtcacc aaatggattt cagaatatca 240
ttcaaaacaa tttagccaat aatgtaagat gaaatacaga tgattataga aacattcaga 300
atztatacac tataaatatg aacattaata ctatgtacca cttaaatgt gaaatctgaa 360
tacgtcatat gatgactgag tgtaacaaga acttgttata gattataaca attataattt 420
aatatatctt ttctattttg taaccccaaa agagcatctc tcgcgtcttg cagcacttgn 480
ggggtgtggt agtgtgatga tgatcatgta gatggtgatc cttatatcac gggtgggtga 540
cgagattat

```

<210> 1348

<211> 377

<212> DNA

<213> Ctenocephalides felis

<400> 1348

```

attttatgtg ccagtgtctc taataaatag ttaatatag ttcatatttt agaatcaatt 60
taagtttact tgtaaaatag atgcagtata taatataaat aggggtgtgc attttaaagt 120
ttgcattgta aaaccaaata cttctcatat tctgatgcaa atacttcaat aatttgttat 180
tgttgcaata agcaccctaa actgttgtaa atgaagttgc atgatgtgtt aaaaatatca 240
acgaatattc aacaacataa gtcaagaatg aaatgtaatt tctgtatata taggtctgca 300
tatgatttgt ttgttacgat gtgaaatttc aataaattgt tgacttcgtt gaaaaaaaaa 360

```

anaaaatnaa aaaantg

377

<210> 1349

<211> 349

<212> DNA

<213> *Ctenocephalides felis*

<400> 1349

```
cattcggttt tcacaaataa tacaaaaacc agattattaa aatgattgga gtccgcgcca 60
tcacaaagtc gtccccagtg gtcagaactc ttttgcaaca gaccaggaac ttcaatgatg 120
cttatccagt agtatcaggg cccccaagga ctaagatttc tactgctgag aaaattgtcc 180
atggagccgt catcacagtc ggttgcttg ccatccccgc ttgggtgctc ctccatttgc 240
aagaatacaa aggagaacaa taaacaatga aaattcttag taaatgtgtg ataagtgtaa 300
atttaactaa atacaaagga ataaagtata aaaaaaaaaa aaaaaaaaaa 349
```

<210> 1350

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1350

```
cttcaaacct ttaatgtttt gaaacacaaa ctgttcataa tcaattgtag ttttgtgata 60
aaactcaata tgatcgtata aacctgtgta cctagaaaaa acagaggagc agggagggag 120
tggaattttt attctggatt tccttgatgg tgtacctata aaattttcct tagtactgat 180
tggggaactg ggaatgggag gcgtgtgaat ttgaacttta gtagaggaag tacaaggatg 240
tgggcataaa cttacgtggg aatgtttgtg aagacgatct gatatggaag gagcagaggt 300
aaaagatgag caagcagaaa gtggatatct tagtttctct tttgttgatg gtgtacctgt 360
aaaattttcc ttagtactga ttggggaact gggaatggga ggcgtgtgaa tttgaacttt 420
agtagaggaa gtcaaggatg tggcgataaa cttacgtggg aatgtttgtg agacgatctg 480
tatggaagga gcagagtaaa agatagcagc agaagtggat atctagttct ctttgtgtgn 540
gtcctgtaa 549
```

<210> 1351

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1351

```
atatgaagaa aaatcctaata aatccagtat taggatgcaa aacaagaaca catttatcga 60
agactgcaa agtatttggt gatgaacagt cagattcttt aaattttaaa tcattgcttt 120
ctagctgtcc tgaatttgca tctaaaccca aagctgcaaa caagcagtag tcacaaaaag 180
tatttaaaca agttagatgc aaatctaaaa ccttagaaaa tcaattagaa gttcatcgta 240
gtttaatgtt aaaatcaacc gaagtgcata gttcttgctc tcagcaagcc agaatgaatg 300
aaccatgtga tataacaatt gatgaattag catcatatct tgagactttt gttcacatac 360
ccaaaaagat gtcttcgatg gcagaaatga tgtatattta atgatatttt tttcatatct 420
```

gtaaattggtt acttataagt tctctatatt tatgtaaatg aattagtgtg atattgataa 480
 agtccattag ttcattgtttt gatacatata aatcaaatag atatacatca tctaagctta 540
 ataataagag 549

<210> 1352

<211> 363

<212> DNA

<213> Ctenocephalides felis

<400> 1352

gcngttgtat cagtacctca tgatgaagtt tgcgatttga tggtcggatt tgttgaactt 60
 ttaccaggat acgaggacaa ggtcactgct gaagaactgg aggaatatac caatgaacac 120
 gttcacgacc acgaaaaact ccgaggaggg ctttacatag tgcaggagct gcccgacta 180
 acaaatggca aaaaagataa accaacagtc cgaaaaatgg caaaagaaat gtctcaacag 240
 atctatgaaa aatacgacaa ctcgactaga aaataaaaga caaaacacct ttgttaaaat 300
 agtttgaat gtagatttat gataaataaa attgataaaa attaaaaaaa aaaaaaaaaa 360
 aaa 363

<210> 1353

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1353

aaaatggctg actccggggg tgaaaaagga attatagctg ataataaagc tggcgccgcc 60
 cctaccggtg atgccttaag acacagtcga cttcatccg ttaataaagg ccgtaggcga 120
 gtcaggccca tgctgatgga tgctacggcg atcaacgcgc acacgatgca ctgggtcgcc 180
 tatctcgccc cggaaccagt cgccgagcag caggcccaat tgctggccga acaacagggc 240
 cagcctgacg ctgcggcctc tgccgatggc caattgtcgg atggagagaa cgaagatgtt 300
 agacgttcaa cgaacttcga tgccgaaaac aacgaccag gtggtgcttc ggcgccggg 360
 tctcgcgacc gtcccgcgac ggacgagcga ctgcggcacg ttcgcgacag gcagcaggaa 420
 gaacgccagc gtcggctcga ggagctgagg cccaacgttg gccggcagag gttagggaac 480
 agaagaggaa gagaggagga aacggatcga ggagatcngc tgaggatatg acagcgctct 540
 agtcgaaga 549

<210> 1354

<211> 384

<212> DNA

<213> Ctenocephalides felis

<400> 1354

attttgataa cgattacaga tatctacact ttgtcggaag gttcgcatc aatagtttta 60
 aaaattaaac gatatgctta attagtccag aacctaaaaa atatcataaa caactttaat 120
 ataaattaat gtaatcacat cattatgctt tatagtaaat attttaaatg ttataaatta 180
 tatattttga aaacatagtt attctatgca aattacgcaa atatgaacaa atttttatca 240

acataatatt atttatgata taatagtaat gtccgaattt aaaatatacg ttctcgtatg 300
 aaaatattat acaaatcaaa caatgcctat tcgaagcgaa atatctaatt aagaaattta 360
 tttaaattat aaaactgccca aaaa 384

<210> 1355

<211> 288

<212> DNA

<213> *Ctenocephalides felis*

<400> 1355

gttaagcatg acccagagga attgaggaat ttggctggaa agccagatat aaaggttact 60
 aatgcataat aagaacttaa attagtaatg cagatatcaa attcattata ttgttatagg 120
 atacatttga agaactgaag aagagactac attcttggca gcaacaaaca aatgatccct 180
 ggcgttgtgc tccacattct gtgcttatgg aactcctgg tataactgca gaatgtttgc 240
 cactatataa ttgaaattgg aacaaagctt aaaaaaaaaa aaaaaaaaaa 288

<210> 1356

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1356

acaagtctga gcaggtgcgt catttatgtt aggtaatata aaatttatta tgatatgtta 60
 attttaaatt ttataaatcc tattcttttt taaatttatc aatgtataat aatacathtt 120
 tgtaattgct actgaaaatg attaatctcc acttcaattt caatttttac gtgattcggg 180
 agaggaatag ttacagtata aatataatca atggatttca agatatgaat ttagaaaaaa 240
 aatgttttaa ccagccccta gctctcctac cataaattta tttctaatat ataaagatgt 300
 atcagattaa caactcagtc tttccataat tttccaaga tattataaca gcatgttgcc 360
 atgtctgatt tttttttcat taaaatattt aaaaaattag ttatctacgc gtgctccatg 420
 cgtcttacac gtccttcttg nagaacaga ttatcattat atatatttat atcataataa 480
 taatcgaatt tatagattta tcgtttttca gaaacttgtg caggtgataa ncagactctg 540
 nctccctat 549

<210> 1357

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1357

ctctcgcagt atggctccttg gggctttttg ntaataggcg ttttaatttg cggggtcagt 60
 ctactgattt gcggactttg ggagtgttac tgccgcccac ctcaacagcc tagtccgcct 120
 ctggtagatc cttgtgcctc aatctctcct gataatcatg tggtagcaag taatttagaa 180
 aatattagtc cgctctctta tgatgaattg gacactccac cagcttataa tatcttattt 240
 ccgcccgaac aaaaaagtat acctgtagca acaaccagtg accaggggaac gagttctggt 300
 aatattccag tgtaaatgaa gattactatt agtttttatt ttgttttaat gtgtatcaca 360


```

aaaaaacgag tttatggatc ttaagtctta ttaattgctg aactaaatga atgagatgcc 420
ctcctgggtgc atctcagtga atgtgaagat gatgaactta aataatgacg cttgcttagg 480
ttcaggactg cttaactgtg attcttctnt cttattcang aagttaaact atcttgaaac 540
aacaagtaa                                     549

```

<210> 1358

<211> 497

<212> DNA

<213> *Ctenocephalides felis*

<400> 1358

```

gctnatgtca tttatacgct acatttatac gcgctaaaaa tttacaaaca aattttctgg 60
gtcgttaatg ggacatttaa cagatagcca gtaactgtca aatagtttat ttattaaatt 120
gacatttttt aattattgta tttttaaaca tgttataaag cacataacct atatgttata 180
gtattttttt tgcggttaca tttacaatta tgtatactac aaaaatagag aaaaacatgt 240
gctctatatt tgagaagcaa tatgatcgtg attgggaaat tgaggaaatg caaacaata 300
ttgctcttga acctacagaa gaggaattct cgagacgtac aagttcccgg tcaaacaacc 360
aaataagtac tattccacaa aacgaaagca atatgatgat tttagaaatg ttagccaaaa 420
tgagtcatga aataaagcaa atatctcaag aacaaaaaga actttccaaa cttctgaaaa 480
aagaaaagac aaaaaaa                                     497

```

<210> 1359

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1359

```

gaactttatt aaaattcaat agttacaatt taagtcattt acaatacata attattctaa 60
aaattcattt ataaaataat agggattatt tagtaaataa tttttaacaa tatttttaaa 120
ggtgaatctt gttttgcatc tccatccatc aggtagctta ttatagatct tggcacccaa 180
tgtagttctt agcgatgatt tgagtttgat ttttggacat atcgctgcat ttttattccg 240
cgtattgtgg tcgtggacat cacttctcaa taaatgatta gttttatccg catgcaccgc 300
aatagcttgt tgccaaatat aaatgtttgt gacagtcaaa attttgtgtt ttatgaatag 360
cggcctgcaa gactcccgag gtaagactcc ttctattgct ctaaccgctt cttttgtaga 420
tccataactt tagaagtggg gcactatata cccaagctaa tattccgcgg acgagtcaat 480
attaaagaac gtgactccaa cgcaaaggcg aaaaccgntt naggcatggc ccctccggac 540
catccccta                                     549

```

<210> 1360

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1360

```

cataaaaaata atatataattt caaagccctg ngttatgtaa tgcttataaa attcttaaca 60

```

```

attatatgta tatatgtaca tctcttttcta actcaaacga ctactaatac tgctctctcg 120
ctctgttacc atagttgtac ggctgtgcag tcacaggtct caaatgagcc cttggaagac 180
cttgagcadc gtaatcaggc tgcggaataa ctggcatacg gcttccatac cgcgtagcag 240
gattatcgta atccgtcgtt tgagtcggcg taggttttct tgcaaatctg gtgtttccta 300
cgactgcagg ttttggaac actggtggtg gagttccgta tcctggtgaa tttggattgc 360
taactgggta attcaagttg gagccacggc cgtctggtga cttcggggcg agaattggag 420
gtttaaggga gatggtttga ttgctcattt ggtcgatcgg accagcgtag cattgtgttg 480
taaccttgtg gacttgatat atatgcgtca aatgnttccg ataactctgt anggtagact 540
ctgtttctt 549

```

<210> 1361

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1361

```

ctgtgattat ttactatggt tgctgctgaa ttataaattc ataaaattat ttagttttat 60
agtgaattg aaatattcta aaaatgttga gtaattctga tttcttaaga agaccggata 120
gatctcacat aagatcatca agaagatatg actgtgacga acgcgcctct aaacgacgaa 180
aggattcatt ttatgaatct tttatatctc atagaactat actagtagtt gaaaacaaag 240
aagagcctac atgcaaagtt tcaagatgcc gatggtctgg atttgatgat gaattattat 300
cgcattgtat acacaaacac aacgttttcg aatcaaatga acaaaatata gtcgagtttc 360
agaattggca accaagtgat atctacaaag gagttctact taaatttcgc agtttgctgt 420
tgtggttatt catggaaaat gacggtctaa tattaatgta gtgncagaac gcagctgcga 480
tgtcacgagc tgtggattag gtcaatgtag ctangtcaa agatgtcaag aatgccagaa 540
tctgtaaat 549

```

<210> 1362

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1362

```

atttaaaaca ttccatataa atgtagtttt ttagctattg tttttctgtg ataaattccc 60
aaaaaaggac atgacattat agtttgaaca agctgatttt atttataaaa tataatttat 120
tgtatatgga tgtgtgattg tgtaggtat tgcattggga aattttgttt ttaaataatct 180
tcaaaacagt ttgtggtaaa atatttaatt taggaaatat tggtatatca tgaatatgcc 240
aactgaagta aatcaaatat aaaggcactt tgtttagata tttaaattatt taaaatgttt 300
gttaaatata tatatttggt atttaaatgg cctgcaatat tactgatatt gcctgttcaa 360
atctctaaat tctagtaata tatgtcacca ttcattgtga ttatttcaac gattgtttta 420
tgaagctctt tacagcttcg cttatagtta aaatatttag cctaacatta ttaatgatat 480
tatcacatta gaaatctgtg aaaatattgc tgntaaaatg tatgtgagtt taaattgcaa 540
tatccactc 549

```

<210> 1363

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1363

```

ctttgacaca tctaaaaatt attttaattt acaaaaaaga acttcataaa tttaaaagag 60
agttaaataa aaatttaaaa aaataacact atttaaaatg caatatttaa acatattgaa 120
taaaataaac aatgttggtt gagttaaata tttatacgcc acatagggtt taaataaata 180
aataattatt ttaaaaaata atttatataa attactttga acaaaatcta gcaataagta 240
aaaatgggtt ccgctattaa acaatactat gcagcttttg tagccaacat cgccacaatc 300
tgctacggca ccacaatagg ctggtcaagt ccagccctgt cagccctttc aacatcgaac 360
ccttcaccag gcaaagacat catcttccaa ttaaccgacg aagaggcctc ctggataggc 420
ggtttgattt gcataggagc cctttttgga ggctttgtc cgcttggtg gcaggagtca 480
ggggcagaaa gttgtggata tatgacgtcg nccatcataa tcagtggctt tgctctgttg 540
cgaattgtc                                     549

```

<210> 1364

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1364

```

ccattcgcgc tattttctta acaaaacaat atttatacaa aatttatggt caataacact 60
gtgtaaacc ataacttatt cataactatg acagcaagta gaaaaagcaa gagttgtgct 120
aattatacga tgaagaaagt agcagccgat catggaaagt tcctaaatag gatcaccaaa 180
acgctttatt atggaaaact accgaatact gatcgtttta gtatacccat gtcagaattg 240
gcagtggaga tgttctccga agcccatcgt ggccacactc tgcaaagact acaaatgaac 300
tcggcttgca acatatctcg aaatgcctgt gtcaaccctc gcgctctcgt attggctatg 360
ttatatttgg acagactacg tgattgcaac cctgaatatg tgcgacaagt agccccagc 420
gaactatttc ttgatcttgg atggtctcta gaagtttttg catgacgatg gagctgaaga 480
tgaagtattt ttacacgaat ggctgctcag ggggtattca gtacagctta aacactagaa 540
aaagattct                                     549

```

<210> 1365

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1365

```

ataaattcat ataattaaat ttgtaaattt tgaagacatt tataaaacca aagtatttat 60
ttcaatttaa tacttgaaca ttaattttta aattgattaa attataaagt aaattaagat 120
aagataataa gtatagagtt tcgtgattaa atataatagt ttttatattt ttatataata 180
attttatcga gataaaaaatt gataaagggt ttttcttttg atcttaaata ctatgaatac 240
ctaatacaag ttatgtatta tatatttacc attgaggtta attttaagca gttttgtcat 300
ttataatatg ttgaagttga ttttaaaaaa aattaatcgt ccttatgtaa aacaatatat 360
aaaatatttc tctagaacca acctcaatga tttttacagg tatataacaa aataaatata 420

```

aatacaaaat ttatattaag ttgtaacatc aacatatact tatattaata tctgaaaaat 480
 tatatattca taattattac cctatctaca tattatatcc tgtctataac ttcattcaat 540
 ccatattgg 549

<210> 1366

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1366

atatttatgcg acattttggg ttatatgatt tttaaacatc tgaactgtaa gtcttttttc 60
 atatagattt attaaaaaga atatttttaa aattgaattc ttcctaaact attgctaagg 120
 aataaaaaaa acatcgatcat acatttatat acttagctaa ttactgtaaa attgtaagaa 180
 ttcattttat accttaatga ttaaccatat tccaattaaa aacttagaa gacattaaaa 240
 aaatcaaaaag cactaaaaac tggtatggaa aatcgaaata tatgtctttg ctcttcagag 300
 caccggttaa acaacaatca attcattttt ttttaaagat tattcatata ttttgggtgt 360
 caatgatctt attagtttaa atatttttgc atctgtagaa ttaactgcag tagtattttg 420
 caatgcattt tcaaagttaa taatgcgttt tgaattggaa atgattgnca ttaaggatgna 480
 ggtgaatctt catgtataat attaaataag tatctaaatg tttttttggt tattatcaat 540
 agttttggn 549

<210> 1367

<211> 371

<212> DNA

<213> *Ctenocephalides felis*

<400> 1367

gttatgaatc aatggcatca cctcaaagtg aaacttctat tacaagcagt gaaaattatt 60
 gggatgatag actttatgaa ttgtttccag atttggaatt ctaacagttt aaatatttac 120
 ttaatatgaa atcattccta tttttatatt gatattttta ttatgaataa gttcataatg 180
 gaagtaccaa ttgtttaaga atgctatgcc atcattcgcc taatattagt aatatatgaa 240
 atcaaattta attatgacaa ataatatata atgttttagca tgtcatattt atttaaagta 300
 ttttgtatat tattattaca aattaaaaat agcttatcaa ataaaatata tataaaaaaa 360
 aaaaaaaaaa a 371

<210> 1368

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1368

gtcactgggtt actgggtcact ggtcattaac ggcgacacgc acgctcggtta atttacaatt 60
 gtcctgaatt tgattttttt atttggcgtt tccatgagtg attaattcta ttaaattagt 120
 ttgtgtatata ataatatgtg ttgtaatgt acattggatt ctgattttta cacgtgcttg 180
 aaccagtatc atccgagatg ttgacaataa ccagtactta gaattatcag tgccattaaa 240

gattcgtttg tgcagaaata gacggaaaaa gtaattttaa tattgttagt gatttttttg 300
 taacttattt gacaatgacg agcacaattg gagggttg tgacattcaa gttgtggaac 360
 ctaaattctt ttccttaccg gtaccacaag aacctttaag ggagccttta ccatcagaca 420
 atggttcgtt ttatagtcgg caaggtccca aagtgaggcg ctcacggatt gccgaagacc 480
 ctgtggatat acagtcaaag acatcaagat gccgctcgct ggggttcagga aagggataaa 540
 gaaatttac 549

<210> 1369

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1369

aacgcgctaa caagcgatca cgaacccaat cactaatagt acgatcagta agtgaatcac 60
 ttcactagtg atataaatgg tcaccgatta aacgatttac cggtaaagtg ttcgtgtgag 120
 ttattaaagt gtcggataac aaaatcacag gacgaagcaa gatgaatttg tgcgtgccac 180
 tcttaaattt attgatectg gcgctggttt tgatagcgca atgtcatgct tcgaaaattc 240
 cggagggaat gcctttaatt ctccaaaag atgccacacc ttcaccctta ttgagagatc 300
 caccacacac acccctgctt ctccaaggg atgcgactac tccaccaccg ccaccactgg 360
 tctttccaga agatgtcaaa aactacaaca tcgtaccaa taatgcaacg atcttggcaa 420
 ctttgacgca taaagacgat accaatcagg aaagcgctga ggataataat caagaaagcg 480
 atgatttaaa taagacgccc ggtcagaggn cctgcaagga agtgtatagc acagaagtac 540
 agagagggtt 549

<210> 1370

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1370

gaagaaccag ggatattaca ccattcataa taaattatat tgcgatattc acgccaagct 60
 cgttgctcgc caaaatccac cagctggtag cgaaggatgc attccattca ccgtgccacc 120
 cggcggaata attccggtga gcgctatctc cgcagctctg gctgcccact cgtctcatcc 180
 acttaatgga ggtatggcac cacctaagga ccaagcacc tctaccccg gatatgcacc 240
 agtttcagca ccaacatgca ccaatctgtg tgttcaagtg tctccttcgg ccgtcaatga 300
 tactaaccag cctaaccagg ttacatacga atccaacctt ctagtacaga ttgctcccaa 360
 cgatcccaca tataactatg acgaaacttt agagaaacaa cggaaattga attcaccaaa 420
 aagttcactt gtgaactatg tgaaaattac tccgtataat aacaaccatg aaactagaaa 480
 ttcacctacc tcgattgagc acacacatct ctaaatacaga aactaatcat cccgaatgga 540
 ctgtattaa 549

<210> 1371

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1371

```

caaacttatt gttaacataa accttaccac ttttacgacc tgttcaacac ctccaatctg 60
aaagtaatgt cgatttaact cgggtcgtat aacacgttgg gtatgacggt ggcagagaca 120
gaaattgtgc aatcagaaaag ataattcggga agaaaaaata ttttatata tagatttgaa 180
actgtcctga ctacgaaatg taacaaatat tatgatttac aagtatagaa acatggagtg 240
cctagcttca ccaagaaatc taagattcaa aataacttta tggacaaccc tatatgtagc 300
agaagtgatt atgtgcaagg agaagaaaac tgtgactaaa aatattgtaa acatttagta 360
ttaacaattg atatttctat tgcaacttta ttggtaaaaa accaaaattt tcactactat 420
taatttacat taatagctac taaataattc aatcactcta aagaatgact gttttcgatc 480
ctactccatt catctataaa ctggtctata tgcaaaagtat gagacaaaga agtttactgt 540
ccggtgtcgg                                     550

```

<210> 1372

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1372

```

attttgtttt acattaaatt tttcaaattc gatatgaaat ttttactggc aatttgcggtg 60
ttgtgtgttt tattaatatca agtatctatg tcaaaaatgg tcaactgaaaa gtgtaaatcg 120
ggaggaaata atccaagtac aaaagagggtg tcaataccat ctgggaagct tactattgaa 180
gattttttgta ttggaaatca tcaaagttgc aaaatatatt gcaaaaagtca atgtggattt 240
ggagggtggtg cttgtggaaa cgggtggttca acacgaccaa atcaaaaaca ctgttattgc 300
gaataacccat attccggatg aaagaccaa ttgatataaa ttactaaaat tatgctagat 360
agcaatcata aaattttgaa gttttcaatg atcctaacat gttttgcctc aatttatatt 420
aacagcaaatt tgtggaacta ccgtccgtac aaatgtcaag aaatctgatg ttacaataga 480
tattataata tgtacattgc tatattatag aatatatact gattgcaagt tgaaaaaaaa 540
aaaaaactgn                                     550

```

<210> 1373

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1373

```

gcaaataatt ctgtgttgat atatcttgtc atattaaaaa caagtgaact tgtgaaaatt 60
tgcaattaat ttgggtgaca ataatgagac ttattatatt tatatcgtgc ttggcatcaa 120
gtacggttta aatgtaccta tagtcaaagg cataataaaa acgctagtgg aatttgcacc 180
aagtgttatt gtataaaact gcaatatgat caatataaaa agtatatgtc cttatttttt 240
tgtttatatt ttactttcat cttatataaa cactatttta tgtatcccgg taccaatgag 300
gcgctgtgca aagttataca actcaataag tctcaagcc tcggcagagt acgatgagaa 360
tggcgatata tcaaaagatc tggtcgaaaa tctcttacac aggtgtagaa caatgcacaa 420
gtaattttgt actcttgtn cggaatga aacggtctct catgtatggg canggtgtgg 480
ggaactcaaa taaanaantn gnttcccaaa naatgnttac atgncctttt ntaagcnttt 540
atccaagatt                                     550

```

<210> 1374

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1374

```

taancaaaatt cgtagtttt gaaacaaaac attnttttaa gctttaaacg gattttttat 60
cacctgagga aatcgattta tacaattttt ggaactatgc gctggtgttc tcacttttct 120
gattttttta acagttntgt gtgagatatn aggntcgtag gcctttgaca tatatgccgn 180
acnagatcct cccaatttta ttattggagn nggtccta atanttacc cttccaaaa 240
attttaaatt ttgccaata atgcntttct accatgggta aagctcaa atccggactt 300
ttttattgcc ttattatng atgaataatt tcgattattt gatttcgatn caaaatctaa 360
atgaaccagt ttaaatccaa atcaataat tgaaattatt tgtaacaaaa aaaaaattta 420
taatccaaa aatataaaaa atatttattt ctactcattg aacacaaaa tcacatagaa 480
aatgngcctg ttgctatac aatatagatt aaaatntacg tncgtatttt aataattttt 540
gcataatttat                                     550

```

<210> 1375

<211> 348

<212> DNA

<213> Ctenocephalides felis

<400> 1375

```

caatagaaat taatgaagga atgaaaattt attagttatg ttgacctca tctagtccgt 60
tgacttttgt ttaaaaatat aacgtaattg agttaccagt atgttatatg aagaaaccag 120
ttttttctca ggtagtaag ttatatctt gtttgtttg ttaatcaatc aaacaacttt 180
gttttactga tagttctcta aaactgatta ataataagcc tccccagtga gttgatgtct 240
tcatagtaat aaagtgtct taatactcca agttttattt acaaaaactag ttttttttgt 300
aaattgtgca aataataaat gttactgttc aaaaaaaaa aaaaaaaa 348

```

<210> 1376

<211> 155

<212> DNA

<213> Ctenocephalides felis

<400> 1376

```

gcattgttta aatatttttc gattgtataa aattgaatta taatgccatg tgtaaaaata 60
taaaagttat gtatttttaa cattatatat atagatatat aattgtaaat aaaaataaat 120
tctgacacta ataaaaaaaa aaaaaaaaaa aaaaa 155

```

<210> 1377

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1377

```
ctcnntttca gttgaattct tctattcgctc atattgtttt acatacaaat aaatgcaatg 60
tgcgttttgt aacgggatct gtgatacttc atacacacat atgtatgaat gatagaaaat 120
aacattttcca acgttcaagt agatactgta tgtagtttag tgtttgtgac ggaattcctg 180
cagatcgga aattactaata attacctgta cagttggaca ttttcaatca aaaaatgtac 240
tggttagctg cattattgct tttgtctacg tgctcagtg ttgccaatt taatcgcaac 300
atttcccaat gctgcgaaga aagttgctac agtactgatg accaatcca aaatacaaga 360
tttgcgacta aaactgctta tgaattagtt aaaggagtca gaggagatct gacaggggtc 420
cacattgtga acctgtacag ttctggttgc tgccagacat ggtctagctg caactgcaa 480
gaaatagcag gatgccacat ttggaagttt ggagatgaga tatcgaaatt atcaagacag 540
aaatctggct                                     550
```

<210> 1378

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1378

```
gctgctggtt aaatattgtc aaggcacttt aatttattgt tatattacat ttgtttttat 60
ttgataagtt aatatttgat tttattatta tttaaatgtg tggcaaatg attagaataa 120
tttattcaaa cctgttcgaa aattctgccg aagtaagatg cctacgtatt cgtcatcatt 180
ccgtcatctt tgctctcatt tgctgtgcaa acaaatttg tgaaagcaga aatgaaatga 240
agtaaggtgt tctggcgcgg ttgttgttta tgtagtttt gaacaaatat taagcgaagt 300
gaaatatcac tgttgatgaa tatcagtcac gttttgatat atagttaatt aataatgatt 360
tactttgata tcaagatatt gatatttaat taatgacact tttattttgc gtgcacgttc 420
tatgtttcaa agtttataca cattttgatt tgcttgatta ttgataaatc atgacgaaaa 480
gaatcggcgg cacttacgtn gacgggcata ctagcaaggg caggaaatca tggaaactgt 540
taggtccttc                                     550
```

<210> 1379

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1379

```
ganntttcta aacaagatgc ctncaaacct gatggagctg aagcgaaacc ggatctagag 60
gagaaatact gtgaaataaa acttgacaaa ccagaaattc caacttcac tcagaccagc 120
gaactaggtc cagcagtgct tgtgaaaaag actccagaaa tcgggccagc cgtgttggtc 180
aagaagggta aggtgaaac agagaaaact ctgagtttg gtcctggtac aatctcgacg 240
gttgccattt gtcctaattt aacagtcgct gaaatttaca atgcccctt attagcagcg 300
agcgaaccag caaaaccaa tgttcaagct gatgtcgctc cagtcgatt caacaagcca 360
tcgactcaac cgacagaact tgtagccgag gaagctaaac ctgcagcgag cgaaccagca 420
aaaccaagtg ttcaagctga tgtecgctcca gccgattcca acaagccatc gactcaacca 480
acagaagttg tacggcgga gccaaacctg tgcacaccta agaggttcta aacaccagtg 540
```


tatcgaggca

550

<210> 1380

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1380

```
gaatTTTTgG ttattctaaa taaatatatt taaatacgaa atgctgagca aatagtaata 60
taataacaat ttattttatg ttttattaat aaattacaca atggaacaac taaataacgc 120
tttaaaagcc ataaaagtgc tccgttcgag tgcggacat gtttttgaga ctttgtcaga 180
aggTTtaaga actgaacatg gacaagatac taaagacaca aagTTTTtga ttgaattaca 240
agaattgctg agtgctgtta atgttaactt gagagaggta gagacttcag tgaatagttt 300
aaatgcgccc cccgggccat tcaatttagc aaacactact tatttaagtc aagagactac 360
acaggagaga caggctttgt ctgcgagctt gtaatagtat agtggccgat aagattcatg 420
agtcnaggnc ctacacagct ttttaagtca aatgctttga aaggcatnnt taatcaagca 480
tgcgaaaggc gngggaccca actttcttta catgtgcnc cgaaacngg ttctttatac 540
aagTTTTcag 550
```

<210> 1381

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1381

```
aatctgtgga tagttcattt catcgtctc cagtaaaatc agcaaaggct gaatagtgtc 60
gaagtgtctg cttgtaatac tgattttgcc attcaattgg aataggcata ttattaagca 120
aatgaaaaaa gttacaaata attctaattg aactcgaaat atttgttcta ccatatggaa 180
atcaattgca tattgtagtt attcagcagt tcaatgcatt tttgaaatga catttcgtga 240
aaatttagta ttagtagtat ttcccagtga gtgtctataa aactaaatag ttcgaatatt 300
taaataggac ttctaaagc catttttaat agcttttatt ccgcatagta tttattaact 360
tatacctcca gatgcaaata ttggtcctta tggtaatcct cttatcctta ttattcctat 420
gtaaataatgt aaaaattggt tataaggaag natgtttatt atccaagttt agatattatc 480
atacctatta tattagactg tttgtggcat gctttganaa ataataatat ggattatcta 540
ttaatctgtc 550
```

<210> 1382

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1382

```
catctgggaa attaggcctg gagcaaggat tatctcctaa tgtttgtcca aattcaacat 60
aaaaatatat attttaaaat ataccatgat tatttagtag ctggagagtt tgaggtaa 120
tttaatgatc agttcattgt ttgaaattag ttttgaacac agacaaaaaa acaagcagtt 180
```

```

tgttgatata tttgaattca aaacaaactt gcaattctcg attgcacatt aaattctgtt 240
tttttttctg atcacggatg aagagattta aaaatttggg ttttgggagt gttacaaaat 300
tcgctctgag aatataccgc gcgaattcta agttgtttac tctaatttat ataaattata 360
ttagaatgct aagaatgaaa gcagtcattc cctaaatata aaatgagaaa tagtttagtt 420
ttaaaggcag cgtactcaat ataattataa taaacaaaac aaatttatct caatacaacc 480
cgtaacgaaa cttttatgtg gatttggata attctttggg atatcgaaa ttaaaattcg 540
atagatattt                                     550

```

<210> 1383

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1383

```

ggactaggag catgaatatg tatgaataat ccaaatatat tgggttttat tattttttta 60
ttgatattaa ttttgactat ttatatattgc cataaagtga acttatcaaa attagtgtca 120
cgagaaaata atttagaat catgggggtcc attaaacaac ctggcagggt tatgaatata 180
caacaaaatg cacagaggac aacaaaagct caaggtgggt ttccacaaag cttatctgga 240
agtgaactg atgtgtccac atccaatgag aatttatcac atgaagagcg atatgttatc 300
cgtcacactg cacgtgttga accacaaggt caagagacct tgcaaaaccc atcgccaagt 360
cccactcaaa gccagtgat taatcgattg aaatcaccaa atcaaatgt acaaagaaaa 420
ttggaatcca acatccgaga ccattgatag gagtagaaaa atggaagtat taccagtcca 480
ataaacatga ttcaaattat cgaaataaag agctccatgc cagaatcatt gcatatcaga 540
atcgagaatn                                     550

```

<210> 1384

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1384

```

aaaactggaa cacaagcaat tatttcttaa gattaaattg attgggttca catgcaacat 60
tttaaatact cgaaacatcg atatatctat tgttgcaaat taaatactgc gaacgatgtt 120
gttctctttt cattattttg gttattgtca taacaacata agaataaacc ttttacttaa 180
ttgaacagga atggaaagta tgaaaccgtg gttttaataa aagtaagatt ataatttaat 240
gattagaacc acttttgatt aaatatcagt aaatgtaaaa gcctcgtata aaacgatgat 300
atgataacag ataaggccaa tatagtgtt aaagtcaatc tttagacagt gaaaagttaa 360
attaattgtt tattctaaaa taaaattat tattcaatac tatttaaata aatagatact 420
cataatacaa atattaaaca taaaataatt cttgtaatca tgagtataat gaatacttaa 480
tataaatggg ttattaataa ctaatatcat tatataatta tatataattg gattcgagt 540
aaacncatac                                     550

```

<210> 1385

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1385

```
ctttingttag ttagttgtgc aagaaaaatt agcatttggt catttccaaa gttacatatg 60
gtttgtgcaa acttgatgca agttgtcgac gcgtgtagaa atggaaaaat ggagccccct 120
tagcagtccc gagcagctaa tcgagtgaca tttaaaaggg cgcaaacgtt acatcgagac 180
atgaatagca aggtggaccc ttgcccagac gagcacctga ttattctgaa taaattatcc 240
gctactgaat caacattcct catcgctttt aatccatcaa acaattcaat tatccacttc 300
tgaatcaaca gccctcatcg cttttaatgc atcaaacaat tcaattatcc acttatgaat 360
caccagccct catcaccttt aatgaatcaa acaattcaat tatccacttc tgaatcaaca 420
gcctcatcgc tttaatgcat caaacagtaa gacttatcaa ctatctatca ggcaattcaa 480
ttatccactt atgaatcaca gcctcatcac cttatgatca acaatcaata tcactataat 540
cacagcccta                                     550
```

<210> 1386

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1386

```
cttcntggta cgggttggtc gttggagttc ctttgccat agtgtttgcg attgtgattg 60
gcatattagg ttatatattc tacaaaagaa gaagaaacgg gtgcgactac agggccgcag 120
ctacacattg atatagaatc aaaaaaaaaat attcagaaga aaaatataat ttcatacagt 180
atagtaaatg tataagtagt taattgtagt aatatgtttg tttatggaac ttgcatttat 240
agatttttta aattgaaaat cgtttaaaat caataataag gctaattgtac ttgcttacca 300
aaataaaaaat atcagtaagt attataaaat ttgatttaac aatttggaca aattgcttaa 360
aaataaaaagt cttcgaatat ttttggtctt tattttcatt tatttcattt tattttttgg 420
tactaataan gctggtatct ctaagtttat ttcttatcca gagattttta attaaatttt 480
taanccaaaa ttatgaatgg ttttaatcnc taaaataaaa accaaaattt atggtagaat 540
aaattttttt                                     550
```

<210> 1387

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1387

```
tnatnnngtn cgagattntg tattaantat atcgatnntt ttccagtcgc caaaatggng 60
ttgttgagta aatttaaacc tattgatact acttgatttg aatatgtgca cccttgagca 120
aatagttggt ctgatgcctg tgctgattta acactnnagg ctttcgagag gnccatnaaa 180
atatatacag ttgcatatac agncggacta ttgatgagag gcaaagtacc aaataaatcg 240
gacttaagaa agacttttct ggggattcta caatctgcag catttttaac gacaaatggt 300
tttacattcc ctatgttttt atgttttctc agaaaagttt gtggcnatta caatatattg 360
acagtctcat acgtgccttc gtttcttgca tcgtttgctg caatattact agaacggcat 420
ctagacgaaa ttattatgtt ttatatgtat caaatgaagc aacaganact gttggaatat 480
gttgaagtct aggggatatg tccgtctata aaatatggag aagtgggaat cnnttcatga 540
```

gcatcgtatt

550

<210> 1388

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1388

```

ganttgnatt catgtttact ttcccatctg anncagaata tcagattggt gttttaaagt 60
taaatTTTTa acgtattcta ttaaaagatg caaagaaata ttctttaac tatattgaaa 120
acaaaacaca attatatttg tatgtgaatt atctctgctt agttaataat taaatttagg 180
tatagacacc actagggtata aaaaaagctc aagatttttg tttctagtac attttacttc 240
aattttctcat atttgctcca tttccataaa tcgtatgtct tcaacgtaaa atttcatcag 300
atgcgaaaca ttttcaacaa gaacaaaagt tactattcag tttctcggtc ttaatttaat 360
aagccatttt ctatgcactg acttccaatt ttccatgttt ttatattata atttgtatct 420
atTTTTTTga acaagtttcg ttcaactaa atcagctcgt agTTTTTcgc aataatgccc 480
aataatttaa actttcgagg ttgtgcttat gggtttgaca ctagacaatt ctttttgagt 540
cc

```

<210> 1389

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1389

```

gccgtatgca cgtcaggctg gtaggcagga ataaaaacat aaacactggc aaattgaaac 60
gtacatttgc tacatttgtc attatgtaat cgagccagtg cgatcgcacg gccgtacggg 120
tctgcagcat tcacgatcag tcattgatga ggtgtcgtat tgtgttttgc tgtaatatta 180
gttatatatg cgaagcgttc tttacgccgc cgtcatgatt attgcgaagt gatttcgctg 240
agtgtaccgc cgccgtacgc acggccgcgg gccggtgtgc ctctggacac gctaagtgcg 300
ccgatcatct ccgccggtta cctggttaata gtaataacaa tttttatgca gaactcgata 360
acgaatcgaa gtgggttatt aagtgtatta ttagtgtgtg cagtgtttaa attgaaaaat 420
tgcagtttgc ttatggtaaa gtgcagtttt aatgttaatg tgtgttcaat ctgtgggtaa 480
attatgttac cggtaactgc tctattcatt tatataaaca ttttaatcaa agcctaagac 540
gn

```

<210> 1390

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1390

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actctattag cgatactatt ataatgtaaa aaagttacaa aactttgaaa acgaaataga 60
tttttttatg ttcgttatgg atatatccaa tgtcacagca catgtaaaaa ttacacacga 120
caatgtaatg ataattttta atcttaattt gaaaagatat tgatttatga atatgaggaa 180

```

```

gctgtcacaa gcagtaaadc gcgttgctta atactaaaat atattatatac actttatatt 240
aaatt jtt ctcatcttctt ataatectta aatgttttta tagagactct tcacaactgg 300
atttgagca gaaacatcag aagtacatat tattaagtct ggtgttccac aaggaagtac 360
tctaaagcca attttgact ctgtatacac acaaaatatt taagtaacta ttgaaacttt 420
tgccgtatat gcatttgta tgaggattca cgaaagtga tcggtggcga cggcaaagt 480
ttaacaataa tatgaattag tacttaaaaa gtagcttata agtagaaaat aaaaaaatg 540
aa 542

```

<210> 1391

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1391

```

gccgactcat gtctcagttt gaggttagaa tttattaagt gaaaacatgg tcccacggtc 60
gcagtgtttt acttctatctt tggcgggtgc gcccaggctg ttgccgttcc tgataacagc 120
ggtttcatat ttcgtacttg ctcttccgaa ggatcagccg tctgttctgg cagtgatagt 180
aaaatgcact cctatcttatt gtcttattta ttttggtgtg aaagctggag tatccactaa 240
taaaaacaaa ttggcattgg cacttgtttt ttcgagtatt ggtgatgctt ttctggtgtg 300
gaaggagttt tttccacacg gaatggcgc tttcgggtgtg gcgcagggtga tctatctttac 360
tacttttggg ttcaaaccat taaaacctgt ttaggtgtct atttggtact tagtaggaac 420
tgctttggtt gccctagttt tttcaaacct caaaggcatt tactgtatgg actgccatct 480
accagttctt ttagttacaa tgctttggag agctccgcca gacacagttg atgataaggc 540
tg 542

```

<210> 1392

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1392

```

cngctatgat gatgaattgt gaaccagctt acagctccct tttgcctgat tatgaagagg 60
ctgtcaaaca atcccaggat attccaccaa gttatcaagc tgctgttgct agcgtgggt 120
taattgaaaa agaggctgct gcttcttctg ctgatgcaac tgaggaaacg aataagccag 180
agactgagcc cgccaagaca cctgaaccgg aaactaccac aaaaagtga ccccataatg 240
tgtaaaagtaa aaaattaatt ttaaatcaac tgaaataaat tgcataaccg aattgaaatt 300
ttcatctgca tatgcataga tggcaattag ctgacagaca tattttgaaa atataactac 360
atatatgtat taaacaatat ataaggcat atatataaat atatatatat atatatatat 420
atatatatat atatatatat atatatagaa tatctgaatt agttttaggg ggagatatat 480
atgatgttat atnaaannaa agtgtntcta tatgaanaan ggggggngcg atatttttta 540
aa 542

```

<210> 1393

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1393

```
gantagaatg tattcgtgaa tatcaactat acanaagatt ttgaggttag aaattgtaaa 60
aaaggggttt tgccttatat ttaaataata aacgatatag ctaattatta gtggaacacg 120
actattgaac aaaatcaaag gcaaaaagta aataataacg atttgtgatg cttgaactgt 180
gattcaaaat gtgaaatagg aaggttgtaa aacgaacgtg acgtcttggt agtgtgtttc 240
taaaactgtg tcagtagtgt ttttaagtccg atataaaatg gatgaagagg agaaaaagaa 300
taatatttgt acacctaaac ataattcctt aataaatagt accggaaaac acacttctgt 360
aacacataat ggcgcgaaac ataattcacc tatgatcatc aacaatggcg taattatttc 420
gcacaacgat tacggcagta tcgttactgg aaggagatcg cgaaggatta catcaatgga 480
aggatggcct atcttctcaa aacattgtcc tggacttcgg cgagttatca tcattgatga 540
ta 542
```

<210> 1394

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1394

```
ctataatattt attattacta actatgccta ttataatcaa gaaccgttta attcaataaa 60
ttaaattata taagtagcgt aaaatatttt tcatttgaaa catttggtgt cgaccaagat 120
atttatgttg attataggta agagaatact gcaatgatga tgggtgcctt ttaatatgct 180
tctttatatt ttgtaataac ttttaacttc ccgtagggtg agttatagtt atcgcaaaaa 240
atataaaacg aatttttttt tatactctca cgtttcaggg tttctgaaca ttttgcccat 300
agataaattg gcacacctta gaaaaaatgg atgagggtgt gtgtatgtat tggatacaat 360
ttagtccacg attttgggcg cacggatcaa ccgatttgaa taattcaaaa acattatgtt 420
ctttacata aggagacact tgctgattag ttttttccaa aggcagggtc agcgggttcg 480
gagatccaga acagaatggt tttaaatatg ccatttgacg gtcgaaaatc agtattgact 540
gt 542
```

<210> 1395

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1395

```
ctttattagt caacggcact gtccatccat ngatcatcac tacattttat tctcgtttct 60
cccgttggtg agttgttttt gtttagttat ttttagaatt aagtttggtc aacttttatt 120
tcaagtgaag aagcagtatt atattatggt tataaatggc attgcatgta tgactcacia 180
aaattaaaga agtgagtgtg gcgattgatg atgaattaga aaacgggtgg aagtattctg 240
aaggtgcaca agatttgagt gattcagtaa ataatcatc caaaaataag ttgaatgact 300
acatgatggc gtcccaattg aatccagaag ctgccgagtt tgtaccggtt gaagcgggta 360
gtcctgcacg atcagtatta tttttgagag aaggettgtc tgatgatgta atggctcgaa 420
gtccaagaca atttagtgtc gctgaacaag ttcttaatgt accatcggt actgaatttg 480
catcagaaat taaatcanga ccaggagact aagtgcacaa gggtcttttg aaagcgataa 540
```

ga

542

<210> 1396

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1396

```

cttacttttac ccacacaacc tgcagctcct atatttatgt acaatggaaa cattgatttc 60
aagcctgata cattactaaa ccaaccacaa gtgatatacct tgcaaaaccc tatagtaaac 120
aaccaaaaca cacttatattt ccatccggta caaaacaata cgttttatga tatcaaaaaca 180
ttctcacatg ccccgacaag aaatgtacca attgcaaaac agaaacctgg tcgaaaacaa 240
ctggcagctc gtcagactac aaataatgtg caaccacaaa aaatccttgt gcctaatatg 300
aatacaatgc aggacaagca acatgtatta ttgcaagcaa agttaatcaa atcggaacaa 360
catataaaca aaactgttat gtatactact acaccaattg ctgtaatcga tgacaaattg 420
gctatcaaag atttgtccca taaagaacca aaagtgaag aagtcaaacg cagtgccaca 480
atgctataga acgcagatcc ggacaagtat caatgataaa atattgactg aaaatatgat 540
gg
542

```

<210> 1397

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1397

```

gtgcctttgt cgccatatta tttctggtca tngtattttt ggtaggattc gcctatgtga 60
tgtaccatca gaaaattttg gccaaatcct attttgaaaa agtgcaattt aataaaatga 120
ggagatcttt gaagatttat gatgataatg gtgatactat cattagtgga gagttgggta 180
caaccctaag gtctgatagg gtgtttcctt gtcatgccga ggatatgaac ttttctgaaa 240
ggaagagtcc cctatgccta gaatggctgc acagtgcccg tctctatctg gatcgcgaa 300
aagacgcttc cataatatcc tcgcacgtcc attccatatt cacatccagt ggttcttccc 360
aaaattccaa caaccctaac cccacacatt ccactttgaa atgctatgac gtctcctggg 420
ttgcaatttc gccctacat taccgactg actgttacca gtggactggg cctgccattg 480
cttgcaaatg atacaagagc ttcaaaccat ttattactgg gaaaaactgg ggaaatgtct 540
ga
542

```

<210> 1398

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1398

```

aangtgcaaa atgatgatat cgattttact atttacattt ttgagtgtat ttcatttagg 60
atcatcccta caatgttacc aatgcgacct ggcaataaac ccggcctgca cggcgctctt 120
aaattccact aaagacattg cagccgtaga atgcggaaaa cttcctcaac aagttagtga 180

```

```

aaatgatcgc tccttaatac gatttttggc accaaatttc gatggacact tgtcaaccac 240
caggaagga gtcggatttc aatgcgcaaa aattggtgcc acgaataaca ttcaggggtgg 300
ttataatatac acgagaattc ttcgaacatg cattgtcgat accttaaatt gcgagaaaat 360
taatgaagac ttaaaacaag aaggattttc ttcaatgatg tgcgcaactt gcaacacaaa 420
tttatgcaat agttctactt ctttaagcat cacaatttta ttaccattta tattattttt 480
aatcacaaaa gcccgcttta gggaaataat ttgagttaga tgaaaatttt caaagtcctt 540
ca
542

```

<210> 1399

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1399

```

atnaatgtta atgtatttta attaattaca tgtcattaaa atattgaaca gttttagaag 60
gttgtaataa ataaatcaac tataatttta gtgtgcgcaa tgacatctgt caagttattt 120
tctaataattc tgtctaaata aatgagaaaa atccaaaatg ttcaaaatgg agggatgcta 180
tttgtcagga gggggtatgt aataacagct atctgaatcg tcacatttct catagcattc 240
tggtggtata gtgatgggtt ctgcgacagg agcggggcaa ataggataat tatcttcaag 300
ttctgaatct tcagaagatt gttccttttc tataatttca tcattttaat ttaatttggt 360
tgcacacaat aaatggttta caaattgaaa actaatgtaa aaaaattatg agcaagtttt 420
ctgaaaatta aaaataaaaag atgacttaat ttagtatcag tgtcatcggt ttatggagta 480
acatccaatc atgcaaataa atgattaatt atgaccatgc cagagacaga tttcacatga 540
at
542

```

<210> 1400

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1400

```

attaccaagg gagaggggggt tccagaaatc cttaaaaaat ttatcatgtg accaatggac 60
gcccccttag gattaatatg cagtaaaagt ttttttattc ttattttatt ttaaaaaaat 120
gacaatgtat gtggttcac aataaaaaac gtaacgattc tattttatta cttattttt 180
ttgtggaatt ttgtgaaact atttcacaaa atttttgtac gatttatctt cttgctttct 240
gattgtatac ttttgatctt agttttattc cacaatttaa cagcctcata caaatgagca 300
tatggacgtg atgtcactat tttatccact taaaaaaa tggacctgaa aatagatcga 360
gttctatatt gttccattt tatccaaatt gacttccat caaagtcggg ggtaagttct 420
tggttaaaga tttaatggaa gctttttgta ttttttttc ttgtggaatc gacatttaca 480
aattgttgac taaattcctc ttaatttctt aaattggaat cagctcataa atcaatgtaa 540
aa
542

```

<210> 1401

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1401

```
anttcggttg aattgtagct tcttacttga aatatattat cttgtgtgcc ttactacatt 60
ttgatataca aaacattcga ttcataaag atcattccat aaaaaccata atgtatcagt 120
attatcadat aataaaatth ttaataatth taactaccgc tgattatatt tcattgctth 180
tttgtagctg gcagcataat ttaataaaat ataagcacct aaagcaagtc atatacagta 240
ctacatatgt tgaagaatth gatgaaagca atcaatthth gatttgtaat tgatttaaht 300
atattatgth aattaatthg aatataatga ttagattata gattgttcatt tcgtattgca 360
gaaatacgaa ttgaaaaatth aattatthta ttaaagatct ataaatthcg tccaaaacth 420
aatcactgat tcaaaaatthg tgcagtagth gcacatatth atthttatag taatttagat 480
gttatththth gcatattcaa taggatagct ththttacaaa aatatattag taatcaatat 540
aa
```

<210> 1402

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1402

```
aanaaacgag cccactggct gtctatcaaa aaaaaaaaaa aaaacgagcc caccatcaa 60
aaatthtgth cgcagccac tgcatagatt ctaactaact aaatacataa aatacaataa 120
gtactactta cthttatatat tattaagthth acttacaaca atatththth atthattact 180
thththtatat tgcacttctc agattatata tattatthaa atthattatt cgatgtatta 240
ttacaatcgt gccataaath aaaaaatag agtatcgth gtaaatatat tagttaccag 300
ttagatgtaa thththgtact ctcaaathth aatcgaaacc aaatththga ttattatthaa 360
taattgataa gtagththta ttaaaatagth tggacgthth catctcagat aaattatatt 420
aattatthta taagthtatg atgcattgta ataagtcaca cthctataaa ttaatththta 480
atcaaathct tggatataatg ngaaaatthta ataagctcac tatatathta tgcttatata 540
ta
```

<210> 1403

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1403

```
atgtcgtcga aatgggcaaa gtcggctatc aaatcagagt tggthgthth gtgccgtcgc 60
gcttcgactt actthththth catttatthaa acgcacgthc attcattgaa tgcgaaaaca 120
tggatatgga gagacagtcg cthcatagth acactaaaca taacctaaaa tattgthgta 180
taactaaaag ataacgatat tataatgthth cggagtgaath thththttata agthctgtgt 240
attaaatthaa ataatagthth agaccgaaga tatcacatth gtgtcaaaat gccaaatgth 300
aatgtgacaa acggtgcatt aaaaatgaatc tcataacctc tgtgtatatt thggtthctta 360
gcaaaaatth agtgtacgct gatagthgga atgtgtaaat tagacgthac tagaaatthth 420
tgatththaa aatgagthatt ggtaaaatgt gtacgcaaac gagcgtctac tagthggacg 480
tatgtgataa tggctgthgt cggacataga tctagcaacg ctcacaaaag acgtctthaa 540
```

ga

542

<210> 1404

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1404

```

acaacatccc ataataaaag cattgtacag cctagtggta atgatcatat tcgagggggt 60
aatgttgctc cacctagaat gcaagatggt gtccgtccaa aaagatattc ttgtcaaaga 120
cctgggtggta ttgtaccaga aacaaacatg caaggccaac cgcagcaaca acaacctgta 180
tatcaacaga actactatgc aactgaatat actccgcctg tagcaaatga acaaaataat 240
tcacatcaag gacaacatat accacaagca ctaaattggga tgccccaacc aggggggtcag 300
gttggtacctc ctaatatattc tgtgccaccc ccgcaaacaa tgccttatgt accagaacca 360
gttcctacac aggtcataac cactagtaat caagtgatgc cgcaacaagt tcttgccctc 420
aatatcctca agttctatgc agtttaattc gggaggacc cccatggctc aaataatact 480
tttatccaca atcttttaggt atctgtctc tctaactgac accccacaca atatctccca 540
atccctcata                                     550

```

<210> 1405

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1405

```

cacatatattt tcaacatgga aggacgtgtg tgtcgggctc gattaataaaa aacgtggaaa 60
ttaattatct cataatggtg ttagtttcga aaggctatat ttatatatgt agacgccagc 120
ctaccatttt ggttgatggc gatgatctga tattacgata aggaaaaatc tggaccacga 180
gataactgta accgcgccag ttaactcgtt caggatgtgg tgtaagtact gccttcatat 240
attcctgata aataattttc atgatgttta tctgtatccg agggctgatt gtttgtgaat 300
gttaactctt tgactgaatt aatgaacacc ctctaattta ttatggaaat ctctacaatc 360
ttgtaatat tacatgattg tattacagtt tatgtgtct gagcatagag aagcacctgg 420
aaccataaat ggcttcttga aaacatgcat cacatctcat gtctacacat gtatcctgca 480
ttgatgagaa ggggtgtcaa tcacatccat acataatgat gtacatatat cctgcattag 540
tgaagagaga                                     550

```

<210> 1406

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1406

```

cnacattgca tggnatatct tnnctctnng cgggnttntt ggtnnnggtn ngtnngatngg 60
naggnttgtn ggctcgtnac nagacnctt gnnnncgntc aantagccca ngatnngttt 120
ctcacannat tgntggngtg tntttctctg cctnaaagac ngatacacat ggatntatgt 180

```

```

cgnngnnant ncatgtactg nccgccaggn ttgtaatttg ngacaaggan gntgctnttn 240
caaacctgan cntgcnattc tncacgcacc atgcaatgcg acanacanatg aattgacctg 300
anccctacna ntgcanaagg ngtnanttct gtctgnaaac gganntgatg gantnttnna 360
agaatgcgnc ngtaanannn natnctntgn cnganctgga cgtgcncctc tgcttgata 420
ccaactttaa cnagacctcg ccnatatgtc atnaantgag aaccgccttg ccangacata 480
tcnntntttt ctctgaaaac agaacattta tngtnnaann gctatncctc aggtntaaan 540
cccatcgang 550

```

<210> 1407

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1407

```

gtcaacagcg aacagcgagt ctcgcccgcg gnnctctaca atcattaatg atacgcacgc 60
acgccacgta actggcgca gatatcgcaa aaatacataa caggagtaat agtatagtaa 120
tagtatattc atttgaatag acttgagatt gagacaaata gcgcgcgatc tgcaagtcac 180
tgtgaccaac ctttgacgtt tagcgaattc atcgtgtatg tgttttgaa tcctattatt 240
gtgtgtgttt gtgaatttcg tgttttatta ccgtgtgaag ttgtattcag gtgctctaac 300
actaagtgat tttcaacaaa gattttttaa gaaataaatt ttaatcaaaa tcgaatctgc 360
tacaataatc cggctgaacc agtagatgac cttgacaacg agtttgattc gtagcgatta 420
acgaacgctg ccggaccttc cgaccaatac tcacggattt attttgatta aatgagattc 480
tgttataagg tgacgtctag aaatagatgc agatgtgtaa cttgtttgc gnggcagaga 540
aactgtgtcg 550

```

<210> 1408

<211> 428

<212> DNA

<213> *Ctenocephalides felis*

<400> 1408

```

aaaaaactat tttatactgt tacgtaaaac atgtttcaaa gtacagttat agtttgagc 60
gcatggtaaa ctactttggt tcttatttaa tcggatgttt aattaacaga tatccaaaga 120
tgtaacttca actttccaat ctagtacaaa gaattttttt gaacaaattt atggaatgtt 180
cggatttcga ttcccaacca ccaccggatg ggatttttga aatcccacca ccaccgccac 240
cgccagaacc aaaattttat gaattgtgcg aaaaattgga agaagatcgc cgaatatcga 300
tgtatgctct tgaaagcacc ccaggcttca ccatgtacac agaccactgg tatataatat 360
tgattgtgat tttagtagta attgtatcga taataattat aatattcctc aaaaaaaaaa 420
aaaaaaaaa 428

```

<210> 1409

<211> 455

<212> DNA

<213> *Ctenocephalides felis*

<400> 1409

```

tgaacgtcca gaaccaaatg atgaagatct ctgaaaatct gcgcgcgtaa aacaaataac 60
taaggttaga catggaaatt gtgaagtatg tcacaggcac gccgcacggg acacctcaca 120
ttcagccatt cagggatcat acaagtggcg accgtgcgaa gcgcgagccc tgcgtgaacg 180
cgcgaaacctt ccgccataat atagggttca gtttaaattt atagtatcat ttcaaattta 240
acttttagaa cagaacaatg ttcaaatact atatctgagt attatctgac caatactgct 300
agatctatta cacttatgca gtcatacaat agtacataaa agaaaacaat ataagaaaaa 360
aatattattt tcttgatta ttcaaaagaa gctatgtaaa tattaataaa gcataaatag 420
aaagattcac ataattcaaa aaaaaaaaaa aaaaa 455

```

<210> 1410

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1410

```

gaagcatttc atctgtcgat cataatctag tcnagggtgga aaaatgaaaa tcgttctctt 60
aacaattggc tttttggtcg cggtcgtgtc ttcaaacacg atctcattgg atgaaagttt 120
tgagtcaagt tttaatgatt taaaatcact cgagagcaga ggggcattag aaaataaact 180
attagcagct gctgaagatc tgagaaaaac ttttaagaaa ggtggtaatt tgactaatgg 240
cgaagttagt gacccatggt tccttgaaaa tgttgatgct gacattgaac taccaaact 300
tgccaagcta aacggagctc ttgccaacgt aacagttgat gggtttatcta gtttcaatat 360
aaatcacata aaagtgaatg tgctcttcat gaaagctact ttcaatatca cttttgacca 420
tctcatggca aagggctcat acgacattga aggcaagttg gcagatttgg ctaagttggt 480
ggcaaagggtt cctttgatat catgnacgtg attaaacgct gtggacatgt caactatggt 540
tgaaaggtta 550

```

<210> 1411

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1411

```

gtcgggtcaat tctacttaat cgctgtgcaa ttatatgtga acttgtaaata aatcgttatg 60
ctatagctca gtgtcgtaga gttattttga tatgaataag tcataagttc tatcaagata 120
taaaattatt gcctaataatc aatgatcacc aaacaaatag tttttaattc gttttttatt 180
taattttaag agaataattat tatgaatatg ttaagattat ataaatagtt atgaacgttt 240
ttcttaagaa atactcaaag acataatata tacaaaacttc atataaatct gttcttaata 300
taaaacttgt taagagattt tgcatatct ataaatttta ttacttcga aatactatta 360
aattgtgcat aaaattattt gatatacagt gttcttttta atatccactt ttattatttt 420
aaattcatat agtattttca tattttatgt taataaaata tatttaataca gacactaact 480
cttatttata ataatatgta catttggtct catgatagaa atactgtgat gctaaaaaaa 540
atggtgtcgg 550

```

<210> 1412

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1412

```

cgccaacgctc tatttaaaat ttgatatgc aatttggtgtt aaatgcggtg taaagaaaac 60
tatttatacc tatttactgt tgtctttatt ttgcttcata ttttattttt cggatccat 120
aaatatcggtt gtttggtgaaa atttggtgga aaaagtctat taagcatctt caagtttggt 180
atggctaaac ctcacctgaa gaaagtagcg ttcctgagga cccgctatgt cacagcacta 240
aaattaagat ttttcttctt tgtgacaata ccagtttggt atttggtatt tacagcggtta 300
acaaaacaat ccgtttcttc tgaagatatt gaattattacc cgcagacacc agaaattact 360
ggatcgcgga aattgcttgg ctatctttca ccgatgcca gaattcgagc ctggcagatg 420
atcatggtca taactgcacg cccgcagcta tcttagattt tccctctgat ggattcacca 480
gggagcaaaag aagacagggc tgggcctggt ccatgccgca tcgatctact gttctgggtt 540
tagcatagtt

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<210> 1413

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1413

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ggaagtacc agtatggcac tcctacatta tatccacaaa tggctacaac agcaaagtca 60
catggttcaa caactaatag tggatacccc aagccttctt attctgggtta taatgcaggt 120
tatgaatcac taagccaaag ccaagattat acaaaaccca gtggttctta tggctccagga 180
ggaagtgtta gcggtactac agtgggtgcct caggtatctg gcaaatacaa cacaactaca 240
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gatatagcaa gcgctatgta taataaaact catacagcat taaataaagt taattcttat 360
gagaagcaaa catttcattc gggcacacca ccaccgttca acatgccagg aagtgggtcc 420
agtgggtacta cttatggggc tccgcattta tttataccaa caatggcacc tcaccaacaa 480
gctcatcata atacacagat gctgatcagc ctttgataga ttatgggggc cttcacaagt 540
agtcacangg

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<210> 1414

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1414

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gttattctta aaaagctaag tagaaataat ttatctttat cagttcaatt gatttacatg 60
tgaacatgat taacatatta tcttttatca attttaatgt tcaatgtgat gtttagtgta 120
aattttaagt tattttttta attatgatca tatcttttta ttcctacatg tctttcattt 180
tagtattgca tataattttt agtaaaaacc ctttttcagt tacattaatg ttttctgttg 240
catgctacta gagaaagtag ttcattctaa tttaatgaat gttagtaatt gaatgcttgt 300
ttagtgtagg tttttgagat tgacccaaat aacatctttt ctatctgatc atattctgtg 360
tatttttata taatttatac taacagcttg cttttaataa ccgtttgaat ttagtttgtt 420

```

attgttggtga tcaaaacgat aatttgcgtg tcttcaaaat ttctttgccca gaaatttgga 480
 aaaaagtntt cttatttatg accaatttat gntgagtcta attgggttta ataataatta 540
 attctggaca 550

<210> 1415

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1415

cagagatgaa taaaaatttt taactcaata tgggtgtaac ataattttct aaagttaatc 60
 gaattcgaac gaagtataa gtaacattgt gccaaaatgt caatcttagc cattgatttt 120
 agtgggtctgg ggcctcgaaa atctgttttt gtgtgcatta taatagtagg atgtttttct 180
 attttatggc caaaaatatt tcatcccatg ttatgggat ttccagatca acaaattatg 240
 ccaaagtcta tggacagata cgcaggttgc tgcgatgtga tattcagcag cgatatgaac 300
 gctctgatga cagtaactaa tttatgtgcc caagtgttta aatttcaaga tttcaatgaa 360
 acaaagtatt tgggtcctaa cgtgaataat agatgtaggg ccgaaatatt atcacgctgc 420
 ggcctggcat attaccgcta tttcatccg gaaaagggtg tccagatgtt aaaggagtga 480
 aacgccttct tacgagatng ttcgcttaat ggctcatctt gcctnagtga gttcggaaac 540
 ctccatggct 550

<210> 1416

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1416

attaaaaaaa aatctcaaat cgatcataaa agttttaata ttaatttcag taattaatac 60
 aacttctgga tcagatgcta acaaatcaga agccacctgg gagagtttgg atagcagacc 120
 atctccagat tggatgatg atgccaaagt tggaaatatt ttacattggg gagtttatgc 180
 agtaccagat tttggcacag aatggttttg gcaaaattgg caaggatcta atgtgtcctc 240
 ctacgtggat tttatgaatc agaactatcg accgggattt acatatcaag attttggtac 300
 agaatttact acggaactgt ttgatccaaa ccaactgggt gagctattcc aagcttctgg 360
 ggctaaatat gttgtgttaa caagcaaaca tcacgaagga tacaccctgt ggcataaaag 420
 tactctttca gttggaactc ccaggacgtt ggtgtcata aggatttaag aggtttacta 480
 ccaacgcaat tcgcagcaaa accaactacg tttcgtctct atcactcttg tcgatggtca 540
 cagacttat 549

<210> 1417

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1417

gtgtattcat attaaaaact gctgaatcca cgtgtgtata atgtcagacg cagtgggtggc 60

```

aggaagtggc ggacaacctt attctggaca aatcaagaaa gaattatcgg aaggcattat 120
ataccagacc gcagaaagtc caggatcaac atgctgcaca gcgctgtatt ccgatgtaga 180
agtgataaag atggaaattt cggatcattt tgaagttgtt gacccgaaat ctctacagat 240
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ggaaattacg acaaacgatg atattaaaga agacagtcca aggcgtcttt gccttgtttg 360
tggatgataa gcctctggat tccattacgg cgctgcctca tgtgaggcat gcaaagcatt 420
ttttaagaga acaatacagg gtaacataga gtataattgt ccggcagttg gagattgtga 480
aatcaataaa cgaaggcaaa agcatgtcaa gcctgtcgat tcaaaaatgt tagcattgga 540
tgtaaaaga

```

<210> 1418

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1418

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gccgtcaaaa atggctggag tattatttcg tgtaatttg gctaaaacac aattgggcat 60
aatcagccca gtttttacia ttagacataa cagcggtgga ccaccaccac caggcactcc 120
acctccacaa acacgtacta aatttgggtc tcttaaagat gaagacagaa tttttacaaa 180
tctttatgga cgtcacgatt ggagattgaa aggatctttg aaaagaggag attggtataa 240
aactaaagaa atcattctta agggagctga ttggatcata aatgaaatta aaacttctgg 300
actcagaggt cgtggagggt ctggttttcc ttcaggtttg aaatggtctt tcatgaacaa 360
accaggagat ggaaggccaa aataccttgt ggttaatgct gatgaaggag agccaggaac 420
atgtaaagat cgtgaaataa tgcgacatga ccctcataaa ttggtggagg ctgttaattg 480
caggaagagc atggcgctcg actgctcatt acatagagga gaatttatat gaacatcaat 540
ntcagttgc

```

<210> 1419

<211> 406

<212> DNA

<213> *Ctenocephalides felis*

<400> 1419

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gttaatttaa aataacaaaa tgaaaggaac attattaata ttatcatgtc ttgtgatcat 60
gataagtgcc gaatatgctg acgtagatgt gtgccaaagat ttggacgatg gaacttttct 120
tgctgattca aacaattgcc aaaatttctt catttgtgat ggaggccgag cttggaaaat 180
gtattgtcca ggatcacttt tatggaatga tcacgaagga acatgtgatt acgcacaaaa 240
tgtagaatgt taccaaccag aataaaacat tttaatatct gacagcgatt ttctgaaact 300
atatttcata ctactgttat aataaattta tcttcattgc tctcctccta taaattttatt 360
ccgttttaat aaatcaata taaagacaaa aaaaaaaaaa aaaaaa

```

<210> 1420

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1420

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agaacagaag tatatatgat gagtatcagt gcaatttaaat aatgagagaa cgttgtttca 60
atattattag taccatatac catataatga attagtagaa aaaaaattgt ttagtggttt 120
tagtattttc ggacatcaac tcattaaatt cataatgtct tcaggtagac ctataaaatg 180
tgttgctgct gccgacggaa cagtgggaaa gacatgcatg ttaatatcat acacaactga 240
tagtttccca ggagaatatg tccctacagt ttttgacaat tattcagcac ctatggttgt 300
tgatggaatc cctgtttcat tggggctttg ggatacagct ggacaagaag attatgatcg 360
attaaggccg ctgtcttatt cccaaactga tgtatttctc atatgtttta gtgttgcaag 420
tccgtcatct tttgaaaatg tcaactaaag tggatccctg aaataaaaca tcaactgcctg 480
atgcacctat aatcttggtg accaaaatag attaagagac gatagagaaa ccttaagtgc 540
tctacagac 549

```

<210> 1421

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1421

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ctgataccat cgaagccagt gctgattcat gacttgggtc gtgtttatat acaaactggt 60
cctgatgtta agaggtgcat tcttagatta ttagaggagc cagttagaca actcggcatg 120
gaaaatactg aattgatgaa attagttgag gcctgtgcaa agggatctga aaccttggtt 180
acaagggtga tacatatttt gaccgaaaga agtttgccta gcatggaact agtttctaga 240
gttcgagatc tttatcacac taaagtatct gatgtccgat tcttaatacc agtattaaat 300
ggtcttaata aagacgaggt tatagattct ttgcccaaat tcattaaact aaatccagta 360
gttttaaaag aagtttttaa taagctgctg aataatcaag caggtcctac atcatatcct 420
agtccagtta cacctataga gttgtttag cgtacatata atagacacaa ctagtgcaga 480
tttaaaattc gagtgaagc aacaagttgt gttagcagag aagnaattac acccagaang 540
atgcagagt 549

```

<210> 1422

<211> 534

<212> DNA

<213> *Ctenocephalides felis*

<400> 1422

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tgangatcgg cttgtgctcg tacagtggat acaaaattta tcccggccat ggcaaaacca 60
tggtcaaaat tgatggaag acattcactt tcctcaattc aaaatgtgag gctgctcatt 120
taatgaagag gaaccacgt aaagtaacat ggactgtctt gtacagacgc aagcacaaga 180
aaggtcaaga agaagagttg actaagaaac gtactcgtcg tacacagaaa ttccaacgtg 240
ctatcgtagg agcttctctt aatgacatcc ttgccaagag gaacatgaaa cccgaagtac 300
gaaaggcaca aagagaccaa gctatcaggg ctgcaaaaaga gcagaagaaa tccacgaaag 360
cagcaaaaga ggctgcagct ccacctaaag tgaaagcccc accaaaagct aaggccgcta 420
aagtgaacca gaaagcacc cagggttg cggtaaacga taagtgggtg ttgagattat 480
tctaattgtat tatatgaaaa ataatttgta aatgctaaa aaaaaaaaaa aaaa 534

```


<210> 1423

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1423

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tgaaaaacta cgatccccag aaggacaagc gtttcagcgg caccgtaaaa ttgaagcaca 60
ttccacgacc aaaaatgcaa gtatgtatgt tgggagatca acagcattgt gatgaagcta 120
aggccaacaa tgtcccatgg atggatgccg aagctctgaa aaaacttaac aagaacaaaa 180
agcttctgaa gaaactagct aaaaaatatg atgctttctt agcttctgaa tctttaatca 240
agcagatccc ccgtttgttg ggtccagggt tgaacaaggc aggtaaattc cctgggtctct 300
tgtctcatca ggaatccatg gtgcagaaga ttgatgaagt taaaggaact atcaaattcc 360
agatgaagaa ggtgttgtgt ttatctgtag ctgtggtcat gttgatatgt ctcttgacga 420
gttgcccaaa acgttcactt gtcaattaac ttcttggtgt cacttttgaa gaagcattgc 480
agaatgttag gtctctcatg tcaaatccac tatgggcccc caaagatata taatacataa 540
tgatatggt                                     549

```

<210> 1424

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1424

```

aaaattcaca ttttaatcac aattaatgtc tagtttctaa accacaagga atatacttat 60
aaatatatgt atataaatat aaggaactga ataacttttg atatttggtt gtttggttat 120
ttatgttgta caattaatat atcctttacc ctaaagtcta catatattat caaccatggg 180
taaagcagaa gtaggtaccc ccaagtacat agccaacaaa atgaaggcca aaggcctcca 240
gaagctccga tggtagctgc aaatgtgtca gaaacaatgc agagatgaaa acggtttcaa 300
atgccacaca atgtccgaat cccatcaaag acaactttta atctttgctg ataactcaca 360
catgtaccta gatcaatttt caaaagaatt ctctgcggtt tcttagaact tctgagaaga 420
caatttgga ctaaacgagt ggtgctaata aagtgatcag gattatatat ctgataggaa 480
tcatttgcac atgaatgctc aaagtgggtc attgcggggt tgcaagtggg tggggaggaa 540
ggcatgcgt                                     549

```

<210> 1425

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1425

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gcaagttagg gatcttgata ttaacactac agaaagactt aaaggtgtta tggatttagt 60
atttgaaaag gctgttgatg aacctagttt ttctgtagct tatgcatata tgtgtaaaga 120
gttagctctt atccaagttc ctgctgacca acaaaacggt caatcttcaa ctgttgaata 180
cgtcaatttc cgtaaattgc tcttatcccg ttgtcaaaat gaatttgaga aaaatacagt 240
agatgaaacc gcaagagaag ttaaactgaa agaaattgaa gcgtgtacag accctgagaa 300

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gaagaaggaa ctacagttta atttagaaga agaagagcga aagattcgtg ttaaatctgt 360
 tggaaatggt agatttattg gagagtattt caaacaaggt atgttgccac aaaaattatg 420
 atgcagtgcc ttaggatgct ctgcagtcaa ttgaagaaga aagcctcgag tncctggcaaa 480
 ttgtgcgaca ttgccggatt tagaaattac aaaatcaaga tttnaacctc tttcttaaaa 540
 tgcaagaat 549

<210> 1426

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1426

cgccgtcagc agcaccagc ccgaatcttt ctgtatctct ctgggtgtcg ggcctctgtg 60
 gtggtcctga tgatttccac cacgagatag gacatagccc accaccttac catgaagacg 120
 acgaccagct gcggcacacc cgcaaaagca gcataagtga tagcgattca gaagacgatt 180
 ctattgatac ttcgccgat tattcccaga acgcggatgt cgatgagtta cttcaccttg 240
 gcaaaccagt acgcattaca ttcgaactac ggctcacgaa gcgcaacagc acgctatggg 300
 agacagtttt gaaggagaac gtgctctatg taaatattcc taatgtattg ccttctgagg 360
 ggtctcgtga aagtttcacg gcgctcctgg aactgaccga ggagaagttg ggatgccatt 420
 cgatggtgtt gtgcatgcga cgcgatcgtt cagacagaca gcagctcatg cggcattcat 480
 gttcctcggg ttccaactgt gcaccaaaca acaagctaatt gcaccgaagg tcacgatgat 540
 atttgatct 549

<210> 1427

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1427

atttgtatgt atgatttaga tttatagtgc attaagatgt gtgcttcaaa aatgttatca 60
 cgtgcctcat atacttcac tgtattctta aattcgctgc agcaatttcg tttacaaagc 120
 acattagtaa ttgctgaaca ttcaaagca aaattaaacc cattgactca aaatgcttta 180
 acagctgcat caaaaattgg aggtgaagta acagttttta ttgctggcaa aaattgcaaa 240
 ccgcttgcta atgaagttgc caaagcagcg gggttgaaac aagtcttatt agcggaaaat 300
 gctgcatttg aaaactgttc tgctgaagcc ttgacaaaac ttgttgttgc agttcaagag 360
 caataataat ttacgcata ttttggtggt gcaagttccc ttggcaaggc tgtattgcaa 420
 gaatagcggc aagttagatg tttccctatt tctgaaataa ttgatgttaa agatctgaac 480
 attcgtcgac aatttatgcc ggnacgcttt cagacactga ggtgaaagat ccctaaagct 540
 atcttcgtg 549

<210> 1428

<211> 555

<212> DNA

<213> Ctenocephalides felis

<400> 1428

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rchsnccgaa atatgagcat ttacgtcagt tttgtatgga attgaatggt ttagcagtgc 60
gcctacaagg acaatgcttt cctgaacaat gtacacaaat gactgcaact gaacaatgga 120
tatttctatg tgctgcccac aaaactccaa aagaatgcc agcgatagat tatacaaggc 180
acactttaga tgggtgcagct tgtttattaa acagtaataa atattttccc agtcgtgtga 240
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tttcacatgc ttattttcac catcgagaa tttttgatga atttgaagct gaaacatata 360
tatgtcatag atttacacag tttgtaacaa agtacaactt aatgtcaaaa gacaatctga 420
ttgtgcccac ttttagaggag gatgcaacta tcggagaatc agaggcttaa gcatttatgt 480
tattttatta aaatatctgt gcatgcattt tttatttttc ttgtgagtga ncgtttatta 540
aatcattatg tnnat 555

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<210> 1429

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1429

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gtcaactggg tactagagt agatctacga gacaagaaaa tcgaatatat taatggccta 60
ggatacttta aagatcaaaa tactattata gctgtattaa agaataaaag tgaaaaaata 120
ttgtctgcca aaaatattgt tatcgagtt ggaggacggc ctaactatcc agatattcct 180
ggagcactag agtatggaat tactagtgat gatattttca gtttagatag agaacctgga 240
aaaactgtag ttgttgggtgc tggttacatt ggacttgaat gtgcagggtt tctgaaagga 300
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attccaaaat cagtagaaaa atgctcagat ggcaaaactt ttgtacttgg taaatcttct 480
gataatccca cattcagatg tatttgatcc atttgttga tcggaaggaa gcttaacaaa 540
gattaaaaat 549

```

<210> 1430

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1430

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attgccttaa cgctggcatt ttaaaatccg tctatttggg atcaaactca ttagatggcg 60
atggtacata ctacgacgtc gaacgttttg tgatgcatga taaatataca ccaagaatca 120
ctgtcaacta tgctgatatt ggtctaataa aagtggcaaa agacattgta ttcggtgaca 180
aagtcacaac gatcaaaatt agcaagagaa acatcaaggg tgggtgaaatt tgcaaggcaa 240
ctggttgggg tctattaggt tctgtggact cagtaccaa cgaattacaa caagtagaaa 300
ccactgcaat aacaaacgaa aagtgccttg aattgactca attcattgac ccaacttcgc 360
aaatatgtac attcagggaa tttggtagag gcatttgctt tgggtgattct ggtggaccac 420
tagtttacaa aaatgaactt gtggcattac atcgatgcac ttatctcctg cagaggtggc 480
aggcagatat tttgtgaagt gcgagatttc caatcctgga ttaattctga aattgaaaaa 540
ataaataga 549

```

<210> 1431

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1431

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gcccagtgcg cgaggagcat gaggaaccag atccaagaag aactgagcgc ttcgatgcaa 60
tacttggcca tgggggcgca tttctcaaga gacactgtca acaggccagg atttgctgag 120
atgttcttca aatcggcaag cgaagagagg gaacatgccg tgaaactcat gtcttacttg 180
atgatgagag gagaactgac cgagaggctg caggacttga tcagaacacc aactgttcca 240
atcacgactt gggctgatgg tttgagtgtt ttgaaagatg ctctgaaatt ggaggcttcc 300
gttaccaaga agattaaaca tgtgatcaaa gcttgcgaga acgataatgg agctaataat 360
tatcatttgg ttgactacct gaccggtgaa ttcttagaag agcaatactc tggtaaacgt 420
gacctgccgg aaagatctcc accctgggca agatgatgaa ccaacaagggt gttctcggga 480
gttcttggtg acaagaaact ctgggttaaa tgaacacata atcccatcaa atatcacagt 540
aataaaata

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<210> 1432

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1432

```

gcaattttca gtgataaaag tgaattttaa tttgtaaatt aaaatgtcgc tgtgcaaccg 60
agctgtctca cgcgagcacg tattagccgt aactcgggat tttatttctc agccccgatt 120
aacatacaaa actgtctctg gtgtcaatgg acctctggtt attttggatg aagttaaatt 180
ccccaatttt gcagaaattg tacaactcag actttctgat ggaactttac gttcaggaca 240
ggtttttgaa gtcagcggct ccaaagctgt tgtacaagtt tttgagggtg cctcagggaat 300
tgacgctaag aacacacttt gtgaatttac tgggtgacatt ttgaggactc cagtatcaga 360
ggatatgtta ggtcgtgtgt tcaacggatc aggaagacca attgacaaag gacccccaat 420
tttggctgaa gatttcttgg catccaagggt caacccatca atccctggtc tcgtatctat 480
cctgaggaaa tgatccaaac tggatctctg tattgatgtg atgaactcat tgcgtgggac 540
agaaatccc

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<210> 1433

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1433

```

gaaaaacaaa attatttgat acattttaat ctagaatcat ctgtgtggct aaatattatt 60
tgtgtttcaa tttcgactat ttgacgaaaa tagataatag aaatggcacc taaagcattt 120
ggtgatgtga aaatgcaagg acaagcatat aaagataaaa gtaaaccggc tgatattcgt 180
agcagcaata tatgtgctgc gaaagctgtt tctgatgcag tacgtacaag tttgggaccc 240
aggggtatgg ataagatgat ccaagcctca aacggtgaag tgacaattac caatgatggt 300

```

```

gccacaattt tgaaagaaat gaatgttact catccagcag ctaagatggt ggttgaattg 360
tctcgggcgc aagatattga agctggcgat ggcacaacat cagttgtagt agttgcagggt 420
gctttgctgg aggctgctga aaagttactt cacagaggac ttcaccaac tgcatttctg 480
atgcatttca aagatgtgct ccaaagctgt ggaaattctt acacctgtca caccaattga 540
cttactgtc 549

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<210> 1434

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1434

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tgtgtattat tcgcacacgt gaaataaatc atatcggtaa acttgaata tctattttat 60
taactaataa gcgtagtttg tgtaataaca agtaatttct attagtagtc ataagtaatt 120
gaagagaaaa ctattttcca tataagaatt gaaagcataa aatgattctc tccgtgctga 180
aaaaatctcg catcggtcac ttgtgttttg ccatttcatt cttcacatca ggcctgatca 240
taaacattgc acaattcata ttatacacat gtctcaagcc tttcaacaag aggccttaca 300
gaaaacttgg ttattatttg tgctacacat ttacagtc gatagtgtt ttagctgact 360
ggtggtccaa atctaactcg accttacaca tatcaaagaa agattatgaa caatgtggga 420
aggaacatgg tcttttaatt atgaatcata cgtacgaaac agattggtat taggatggat 480
gtttacggaa aaaattggtg tcttggaatt gtaggatatg caaaaagact attcaatata 540
tccgcatta 549

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<210> 1435

<211> 509

<212> DNA

<213> *Ctenocephalides felis*

<400> 1435

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ttaatattag aagcaatgac tgagagcaaa cccatgttgg tagagcattg cccattactt 60
gtggaagggtg cacctattcc tccagagcct gcaattggc actggagacc tgaggctaca 120
ttttatcaag atggcgcaag aattgaagct ggttttagaa aatattttca ccgagcagat 180
cctgatcaga aggaagacag ttacacaatg attgtatgtc acgccaatgt aattcgttat 240
tttgtgtgca gggctctgca atttctgct gaagcttggc tgagactttc attaaatcat 300
gcatctatta cttggattag tatacagccc agtggtagag taattctacg agtttttggg 360
gaatcagggtc atataccagc aatacaagtt accagtcagt aaaattttta taacataaga 420
taattttcaat ttatttttat tcgttttctt gaaatttata tattttgtat caaattatgt 480
ttatatacct gcaaaaaaaaa aaaaaaaaaa 509

```

<210> 1436

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1436

```

aaaaaatatt attctaacat tatggcgag atacctgcac gaccgaaaat tttgttaact 60
catccggata taccgaagga agctattgac atcatgtctc ccaattgcga aataattatg 120
tgcaccggac gtccgtctcc atcacgacaa ggaatttttg aaaaaattgt gggagttcat 180
ggtttaattgt ggtgtactaa agaacgtttg gacaaagaga tattagatgc tgcaggaccc 240
aacattatgg ccatactctac tatgtcggct gggctggaca atgtagattt acctgaaatc 300
cgcaaaagaa atattccaat tggttatact gcaggagttc tgaataatgc tgttgctgat 360
ttaactgttg ggcttatgat agctactgct agaagatttg gagaagctag gaaacacata 420
gagaatggaa catggggaag cggacctgct tggtttttag gcagaaatgt atctgaaact 480
cagctggtat tgcgggctag gagaaattgg caaactgtgc aagaagatng aaagcttcaa 540
tatgactat
549

```

<210> 1437

<211> 251

<212> DNA

<213> Ctenocephalides felis

<400> 1437

```

gaatttggtg gaggcatttg ctttgggtgat tctggtggac cactagttta caaaaatgaa 60
cttgttggtg ttacatcgat gcacttatac tcctgcagag gtggcaggcc agatattttt 120
gtgaaagtgc gagatttcca atcctggatt aattctgaaa ttgaaaaaaa ttaaatagat 180
tccaatcatg atttgttata atgaaaaatg gtttaataaa ggcagcataa tttaaaaaaa 240
aaaaaaaaa a
251

```

<210> 1438

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1438

```

gttttattga agaaactaaa aatgcatttt tattttaaaa ctggccctgg tgttcattgt 60
atatgcatac agaagagaag taatttgggg aatacacaaa aatggaagat gatgccgata 120
taagagaaca aatttttcac aacaatgtca gagagcagat tatatttcta ttactctttc 180
ttctgctgta tttctcttcg tactggctga ttggatggtt tcgtcgcaaa gagcgcgatg 240
atttttacac ttgcgcctac gacgacgatg gcgaggcgac ggtgtacaga atcagcctat 300
ggctctgcac cticgcgctt gcagtcagcg tgggagcagc acttttacta cctatgtcta 360
ttgcaagtaa cgaagtgctg atactgtatc cgaacagcta ttatgtcaag tggctgaaca 420
gtcactgat tcaaggattg tggaaccatg tattcttgtt tcaaatttat cactattcga 480
cttctgcatt tgcatacctg ttgcggagtc ttccggattc gaaggacgag aaaggagttt 540
ggcagactt
549

```

<210> 1439

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1439

```

gtcaggcgca ctttacttaa ctgaaggtgg agaacatcat gctgttgctt ccatcaaata 60
tcacgaaaag tacagcccaa acactttgga taatgatgtg gcagttttga agttgaaaaa 120
tccattgact ttcaatgcta accagaaacc tgtcgccttg gcctcaaagg atacacctgg 180
agacctcaaa tgcaaattct ctggttgggg attagacgca tatccaagtg atgttttacc 240
aaatcattta caaaaaatgg acgttctgac ctacaataat gctgattgcc aaaagttcca 300
taatgctgga cctaaatcta acacaatcta cccaggaatg ttatgcggat tcaacaaact 360
taatgttggg gcttgcaggg gtgattctgg tggccattgg tatacgaaag tgcaaattgg 420
ttggaacaag tcggtgtagt ttccctgggtt tatgaatatt gtgctgtggg tgtgccagat 480
gtctacgttc gcgtatatta ctattggact ggattcacga aaatccgcct gttttgcata 540
aatatataa

```

<210> 1440

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1440

```

gaattggcta gtgaatagtg tttgtgttta ttaataaaaa atatatgatt tatttactat 60
ttacttcaaa atattaaaat gtttcccagt tcaagggtcta tagtagtggt aagtaacaag 120
gcatctcggg aatttttgaa acaaaaactt atacaaaatg ttatcgtgaa caagtactct 180
acaaatatag ctgaggctgt atccgtcaaa gatgctttac catacaacaa gataacctgga 240
ccttcaacat taccaattat tgggttagcc catcattttg cacctggagg taaatacaaa 300
ggtctcgatt tagcccaact aacagaaaag ctctatgaag aatatggaga tattgttgcc 360
atcagaggat tgctggtaa acccgatatg gtttccttta taacttcgat catatggaaa 420
aagtatatcg tctgaaggcc ttgcctgata gaccagcttt tgaatcacga gaatattctt 480
gagagaaaaa agaccagaag tttcaaattg ttatggctaa tcaactccaag ggaagaatgg 540
caaaaatcg

```

<210> 1441

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1441

```

attttgacca catacacaat ggtagcagt agtcctgagg agcggaaaat gtttcgtgtt 60
acacaaatgc attatgttat atttgatgaa gcacacatgt tgaaaaacat gaatacacag 120
agatatgaca atttgattaa aataaaagct tcaagacgaa tattgctaac tgggacacct 180
ttgcagaata atttgttaga gttaatgtca cttttatgtt ttgttatgcc ttctttattt 240
gattgccaaa gggaggattt gaaaagttta ttccagaaaa attcaaaaac taactcaaca 300
gtgaagaaag gtgaagatga tgatgattta ccactttttg aacaaacaca aataacacaa 360
gctaaaaaga ttatgaagcc gtttgttctg agaagactaa aaagagatgt tcttaaagat 420
ttgcctaaaa aaactgatta cactgacaag ttccaatgca ccttctcaaa aacttcaata 480
tgagcaatta attcaaacct tttttcagaa ccggagaaat catgcaaata aagaaagagt 540
ggaatgcaa

```

<210> 1442

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1442

```

gtggtgcagg attttagat ggtatgaatc ttggagataa caccaaggca gcagttattc 60
gtcttggttt aatggaaatg attcgttttg ttgatgtttt ctatccagga agtaaaacttt 120
ctactttctt tgaatcttgc ggtgtggctg atttagttac tacatgttat ggtggtagaa 180
atcgtagagt ttctgaagca tttgtgaaaa caggtaaadc attgaaacaa ttagaagacg 240
aatgttataa tgggtcaaaaa ttgcaaggac caataacagc agaagaagt aattttatgc 300
tgagaaatcg tggcatgcaa gacaaatttc ctttggttcac tgctgttcac aaaatttgca 360
caggagatat ggtgttataa gaatttctta attgtataag gagccacccg gaacacatgt 420
aagtgcctgc tttataaaaat ataaatcaga tttaaaatgc ttctcagatg gtaatatag 480
taatgtcttt acatgaacat aagtgaagat tgctagtgtt ttgatatttt gntcttcata 540
tagtatttg                                     549

```

<210> 1443

<211> 546

<212> DNA

<213> Ctenocephalides felis

<400> 1443

```

atattgtttt acattaaatt tttcaaattc gatatgaaat ttttactggc aatttgcgtg 60
ttgtgtgttt tattaatatca agtatctatg tcaaaaatgg tcaactgaaa gtgtaaatcg 120
ggaggaaata atccaagtac aaaagaggtg tcaataccat ctgggaagct tactattgaa 180
gatttttgta ttggaaatca tcaaagttgc aaaatatttt gcaaaaagtca atgtggattt 240
ggagggtgtg cttgtggaaa cgggtgttca acacgaccaa atcaaaaaca ctgttattgc 300
gaataacccat attccggatg aaagaccaa ttgatataaa ttactaaaat tatgctagat 360
agcaatcata aaattttgaa gttttcaatg atcctaaccat gttttgcctc aattttattt 420
aacagcaaat tgtggaacta ccgtccgtac aaatgtcaag aaatctgatg ttacaataga 480
tattataata tgtacattgc tatattatag aatatatact gattgcaagt tgaaaaaaaa 540
aaaaaa                                     546

```

<210> 1444

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1444

```

gcatnatgct gaagtgtgga tttatcgttg ttttncctgt agcctccgcc ttgggagagt 60
tttcgctcga cgaccgcatc gtaggcggca ccagtgttaa tctcgagaac ttcggatggc 120
aagtgtcctt gttagatcgt atgggacact tctgcgggtg ttccatcatt agcgacgaat 180
gggtcttgac agcagcacat tgcgtatttg acctattctc gccaaagcaa tatgcagtgc 240
gtgtcggaag tagtttacat aacaaaggtg gattnatcca caaaattgcc aaagtatata 300

```


tccatccaga ctacgatgaa gtaagctacg acaatgacgt cgcagtcctg aaagttgaaa 360
 agagatttag actgaacggc atgagcgttc gcacagttaa attggttgac gaagatcacg 420
 agttgatgat ggtgcccact tactgtcact ggatggggca aattaatgaa taggcccacc 480
 cataaattac angagtgaaa gtgcctttgt cgaccatgat catntccgca gtactctttc 540
 cggaacaat 550

<210> 1445

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1445

gttatcaaca ggattttgga gatcgtgcaa ggtgtttcca acctagtcta acttcttcat 60
 cttcaatatg tgatgaacga ttcacttggga accctgataa tgagcaaaga atgattttac 120
 aagaagctct gtccaaagca cacactcatt taggcactgg agcatcaata ggttccggtt 180
 ccatttcttg tagctccatt ggttcttctt ctacgtcgtc ttcctcatct agttcttctt 240
 caagttcttc ttcattggtc ggcagcggaa tgggagttag ttcaactcaa ggacaaaagg 300
 aaattgttca aatcagccca caaaaagtag ggcttaaatt aagaattaat gaagttcata 360
 aactaaatgt ttattatgca caagctgaga ttatccagta gattatatta tttgatggac 420
 ttgctaagtc tatggaagat gataagagag atgncagcat tggagattac tctcagaacc 480
 tgagaaatat actcaaattc cgggtgggtt ggactttgng gataagtng atgcntatgt 540
 gcaacatgcc 550

<210> 1446

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1446

cttgtgccgg tccgagagca ccctaaattc aactttgttg gaaaactggt gggacctaag 60
 ggtaattcca tgaaaagatt acaagaagat actatgtgta agatggccgt cttaggtaga 120
 ggctcaatga aagacagaca aaaggaagaa gaacttcgta attccttaga tcccaaatat 180
 gctcatttgg ctgatgatct acatgttgaa atatcggtt tgggtcctcc acagaagctc 240
 acgctcgagt tgcttatgct ttggctgaag tccgtaatat ttggtccctg ataataatga 300
 tacaattcgc caagaacaat gcgtgaaatg atgactgacc caatgcccgcc cagaagaaat 360
 gagangagca cccacattag acgaggtggt tggctgtggt gcttctcgng aggaggatac 420
 taatcgngca gcttcgacat ntggggnatg cttctgngtt ctaatgtgat ccggcctcac 480
 cctcctcac tcgtgtatcc tgtaactaaa tcttcattaa taacaaagtg ctgagaactt 540
 gtntaaaccc 550

<210> 1447

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1447

```

tcttattcat attaattata agaacattta ttngtatttc ttcaaattct tgattaggag 60
catgaattgg attagaaata aatttattat catttatccc tatactaaat gataataaaa 120
atttactatc taatgaatct tcattaaaaat attttctagt tcaagttttt gcttcaattt 180
tattattatt ttttatttct ttgaattttt tatttaaaaa cttttttaga ataatatatt 240
ttaatgaaat ttatttaatt ttattaaatt catccctatt tttaaaaaata ggggctgccc 300
catttcactt ttgatttcct agaataatag aaggaataaa ttgaataaat aattttattt 360
taataacatg acaaaaaaatt aaccctataa tttgttaagt tattgnatta atataaatta 420
ttttatttaa ttcattatta agaattataa ttggagctta ggtggattaa ataatcctct 480
tacaaaaatt atacttattc tcaatacact atggctgaat aatattgttt aataaataat 540
gaataatttt                                     550

```

<210> 1448

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1448

```

atTTTTTaaa gTTTTTTTT tttgaaatta atgtatttgc acagtgtctca aatatataat 60
attgcttcta acatataaaa aatgagtttg aaaagacagc gcgatgataa tcttaatgaa 120
gaacctgata agaagcttat caaccgttca tgccatact tagatactat caatcgtcac 180
gttttagact ttgattttga aaaattgtgc tcagtctcgc taactagaat taatgtttat 240
gcatgttttag tttgtggaaa atattttcaa ggagaggaa acaacactca tgcttacacc 300
cattctgtca gcgaatctca tcacgtctac cttaatctga caacattgaa attttattgt 360
ttgccagaca attatgagat aattgactct tccttagatg atataaaatt gtattaaatc 420
cagtgtttca cctgaaagca tagctgcatt agatgtaatg tgaagctatc tagagctatg 480
atggtctatg atatgcccgg aatggtggtc ttataatatt aagcaatgct atgcatgtat 540
ctgcagcctt                                     550

```

<210> 1449

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1449

```

gtcagatcaa gaatgtgcc a gtcttcccaa ttcaagatgc gatagtggca tttgtgttg 60
caaattcaac tttgtgcctc atccagaaga cccaatatgt ctagaacgta aacaattggg 120
tgaacactgc aacgtaggcg aacaatgtca cacaaaattc aacttcaatg ctcatgtgt 180
ccgagaagtc tgtgtgtgca gggaagatca ccacgaatcg aggaacagaa cttgcatcca 240
atctaaaggc tataaccaga attgcgttga tgatatcgaa tgtttcatcg gagaagaata 300
cagagacagg atcagatgtt tccagaacaa gtgtctttgc aaacctgaat ttccagtcac 360
tgaggacgga aaatgcggat ccggagctcc aggcacacaa gtgtggtcct cggttatgac 420
attagcagtt atggcatcag tagcaaaaat catccgatgt aaaagtttaa aaatagaatg 480
tccaagaaaa taagaaaaga cttacaaaaa cttacttcga ttacttaaga acatcttttc 540
nagcatagn                                     550

```

<210> 1450
 <211> 550
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 1450
 gtgnaacttc atgtactata atattatatt tgtattatat gtattataaa ttcatacatg 60
 cacacacaca catatgtata tatatatata tatatatata tatatatata gttcaaaaat 120
 aatagcagct aattattcaa ccaacatgat aatataactg ttacggattc ttcacaatta 180
 ttcaatattg aataattcag aatatatata tatatatata tatatatata tatatatnca 240
 tgtgtacgaa catgtatatg tgtatatata tatatatata tatatattnn tatatatata 300
 tatgtatatt cgcacatgtg tntgtacatg tatataggta tagatgtttt ttttgacana 360
 catantgtnt attagtatat atataaacta tagtataaaa atataaatga gtgggttcatt 420
 tactttntgc acacctgact catngaactt tgctttctaa gacataaaat agaataatta 480
 aaattngngc tcatgtattt naacaatata ctatctatgg gggantgtat atgccngctt 540
 atctatttnt 550

<210> 1451
 <211> 550
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 1451
 gaaatagca tcggtagaat attttaagtt tttgtgaata ataagttatc gagaatcttc 60
 agaaacaatg ggagcaggca gcacgatatt tagtgcaaga caagtgtgtg ggtgtatggt 120
 gttctgcgga ttgcgcgta actatatgat aagaattaat ttaaaccatag caatagtgtc 180
 tatggtcagg catcgatctt taattgtggt taacgaaaca attaacgaaa aattgcaatt 240
 agttttggat tctggggcgg aaaatgtttc ggaaagttca tccagcacc c aagcgcctgg 300
 accaagcgag atctatcagg aggaagatgg tttcatctgg gacgaatacc agcaagggtt 360
 aatttttagg gcatttttct ggctccactg gatcactcaa gtaccaggag gaatttggtt 420
 agaaaatatg gtctaaactg gtgtttggtt tgcgaaattc taggtgctta ttttgctcat 480
 caccctatc gcgtatatga atatcaacac tatatnctcg agtaatcagg cattgttgcg 540
 gtttcttggc 550

<210> 1452
 <211> 550
 <212> DNA
 <213> *Ctenocephalides felis*

<400> 1452
 aattgttgct ctgatcattg ccggagttga gcttctggga gccatatttg ccctgtgtct 60
 tgcaaatcc atccgcaacg aagataggag gtacgcataa gatctacttc aatactgtgt 120
 gtgaatatgt aattcgtttt tgcaaaatat ctattattat gcaaaaacaa tcaacaatta 180
 taccttcaaa tttgaaaata ataattcgat gtatgtatac aaaagccaaa ttttactaaa 240
 ggcttctaata ttaagaaata ttatataatt gagaacattt ttatgaacta tttaaacggt 300

```

aggaattatt tggagtgttg tcaaattgctt ttaaattgtat taatattttac aatttgatta 360
ttctcaaata acaaattttt ttaatttttt tgtaattgtta ttttatatat tatcgaagta 420
aacacaaaga caaaaaatat atctacacat gtatgtatat atatatatat atatatatat 480
atatatatat atatatatat atatanacac angnnnacn cacacacata natttctatg 540
tgtgttnnatg 550

```

<210> 1453

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1453

```

atttttcgag tgccactaag atgggttaaaa ttntaatga accgcgaaac tgggaaagtt 60
atggaatagt tgatgagcaa caacaacctt caacctctc tgcaaacctc aattgcctaa 120
atccaactac tacttctact tcagaccgtc ccgcagcgac ggtttccaaa agaaaactgc 180
cttcatatcg agaaaaaatg ccacgttctc gcacaagatc gcgatccgc agtcgtcggc 240
ataacaatca tacaaatcat cggagggact attctgatga gcgccattct ataagagtga 300
ggtcttcttc tagaaggagg agacatcata gaagtaggag caggaataga gacagacata 360
cacgtaggan aaacgagagc ggagatcatc atcgaggtta caggcgagcagtcaggagaaa 420
ggagctatcg aagacaccac agacatggag atgattcagc cccgccgaac aagtacgcgt 480
gaaaggcatc aggaaggctc attnagatga taggaggaca tctcatgtca aacctgngat 540
ataattggag 550

```

<210> 1454

<211> 474

<212> DNA

<213> Ctenocephalides felis

<400> 1454

```

gtcncattgg tgctttccaa acccatgtgt gtcgaatcct tccaggagtt ccctccattg 60
ggtcgtttcg ctgtgctgta catgagacag accgttgccg tcggtgtcat caagtctgtg 120
aacttcaagg atgcctccgg tggtaaggtc accaaggctg ccgaaaaagc caccaaggga 180
aagaagtagc tagatctacc gatctgctta ctgcagatgt tcaacactgt aatgaaacac 240
tacttccatc gcaaagcgtt tcgaagaaaa aaggcctcat tcattccttt actatatgtt 300
ttttgactca gctttatatt ttatatgact attttataga ataataatta ttttatgttc 360
tgctctatat taaatgaat ttatattaat gtatggatat tatgtgctaa gaaagaactt 420
gaagagattt gcagctgatg tgtattatag tatggnataa atggaancca aagt 474

```

<210> 1455

<211> 347

<212> DNA

<213> Ctenocephalides felis

<400> 1455

```

gtttngtctc atgcaataat taattaaact tgtttgtag aggtgcaaaa taaaattaaa 60

```

```

ttaaaatgac tgcctggaga caagctgggt taaactacat taacttttca acaatcgctg 120
cccgaaatggt ccgccaagct ttgaaatctg atctaaaaaa tgaggctttg aaacgggacg 180
tatctagcat taaattcaca ccctggaagg acggaaaagc gatcaaaagt gaaaccaagt 240
aatcacaaga tggaataata gacaattcac tcaaattaat aatgtgtacg taaccgataa 300
caagaataaa tgtagttng atnaaaaaaa aaaaaaaaaa aaaaaaa 347

```

<210> 1456

<211> 356

<212> DNA

<213> *Ctenocephalides felis*

<400> 1456

```

agtttgctac acacagcacg tgtaaatttt cataaaataa attaaaaatg gataaacctg 60
tagttcttgc tcgcgttatg aaagtcttgg gccgtacagg atccaagga caatgtacac 120
aagttaaagt tgaatttatt ggtgaacaaa accgacaaat catccgaaat gtcaaaggac 180
cagtacgaga gggatgatatt ttaacacttt tggaatctga acgtgaagct agaagactaa 240
gatagattaa ttctaaaatg tgagaggtga tatcctgaac tataatatct gggttcaatt 300
atttgtagtg aattataaat atacgactta tcaactccaa aaaaaaaaaa aaaaaa 356

```

<210> 1457

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1457

```

cttaaccacc gtcacccact cgccaaatta caccatggct gaaccagaaa aggctcctga 60
acaaccaaag gtgccccac agaagcaaat catcgcttca aaggatgatg gaactgtgaa 120
atggttcaat gtcaaaagcg gatatggatt tataaataga actgacacca aggaagatgt 180
gtttgtacat caatctgcc a tagttaaaaa caaccgaa aaggctgtcc gcagttagg 240
ggatggagaa actgtggagt ttgatgtggt aattggagag aagggaatg aggcagctaa 300
tgtgaccggc ccagaaggag agccagtcaa gggaagccca tatgcggccg acaaacgccg 360
cagctatcgc caatggagct ccctcgtgga ggaccaggg gaccagaag aaattacgaa 420
ggaggcgaag gtaaagaagg gtggggttcg ggaggcgaga acggtgatgg caaggcccgt 480
caaggaggcg gccccgcgtg gccgattccg cggtcgccac gatacacact attacggcgt 540
ggcggacggc 550

```

<210> 1458

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1458

```

aaataatctc tgaaaatggt gaaggcggt gtaggtcttg ttactggagg tgcttctggt 60
ttgggaaagg ccaatgtaga gcgaattgtg caacaagggt gccgagttgt tttatgtgat 120
ttacctaat caagtggatc tcaagtagca aaagatatg gagataattg tttatatgca 180

```

```

ccagttgatg tcacatctga aaaagatggt gaggaagcaa tagcattaac taaagaaaaa 240
tttggtcgtc ttgatgttgc tgtaaaactgt gctggtatcg gtgtagcatt taaaacatat 300
aatttcaata agcagttgcc tcataaatta gaggatttca caaaagtttt aatggttaat 360
actgttgga ccttcaatgt aattcgattg ctgtggattg atgggagtaa atgaacctaa 420
taaggatggt caaccaggag tgattgtaac acacaagtgt gctgcttatg atggcagatg 480
ggacaagctc ttattctgcg tccaagggtc ttgtggaatg cactgctttt gctaganatt 540
accaggcaag 550

```

<210> 1459

<211> 546

<212> DNA

<213> *Ctenocephalides felis*

<400> 1459

```

atttaattaa aatgggtaaa tcctaggcaa tattagaata tgatgtactc atgagatggc 60
aaatcaaaat tttaacaagt cagatgcaaa tgaagaaaat acaaatgaac ctctaccaga 120
atatttttgc tcgtgttgtt cacttaaaca accttatgac tataaaggat gtaatcctcc 180
atttgcaaaa aatatagcta caattgatga atcctatata atgaaagatc cttttagtcc 240
tgagaacaaa aatgaaattc ttatattggg agccgattgt agtatttgtc aagaatctgt 300
atgcttatca accacttgca gtatattttt catgaaaact ctatgcaaga aatgtgcatt 360
gaaacagaaa aacatgtacc ctgaacgatt taaacaaatt attgacatgt ttttaaataa 420
atgcttaggt agttgaataa atgttgattt taaatttata tttaaaatta actgttaaat 480
attngnaaaa agaaaatata gaaaataatt gataaaatgt gggatgatatg aaaaaaaaaa 540
aaaaaa 546

```

<210> 1460

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1460

```

gattcagctt tgcatagaat tgtagatgca actgatgcaa ttgttagcac tgcatattcc 60
cataaaagaa catttattat ggaagtaatg ggacgaaaact gcggatattt agctgttgtt 120
gcaggcttgt gtgttgaagc tgattttata tttgcgccg aagatcctcc agatgccaac 180
tggccaagtg ttttatgctc actattaagt caggaacgat tagctggaag aaggcaaaaat 240
attatcatgg tatcagaagg ggcaattgat agaaatggag aacctataac agcagaaaaa 300
attaaagaag tcattattgc aggtttaaat caggatacaa gaattacagt gcttgccatg 360
tacagagagg tggaagtcct tctgctttg atcgattact gggatgtcgc atgggggcag 420
aagcagtatt agcccttatg gaagctcatg atgagtctga ccttggtgtg tgaccttgcc 480
cgaaccaaca gtcgtcttca atgatggaat gtgttctcac caaactgtac ttacgcttgg 540
aaaataaaat 550

```

<210> 1461

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1461

```

caaaactcatc cttttagtagaa cgtgtcaaga agcgtggatt cgaagtaatc tacatgacag 60
aaccaattga tgagtatggt atgcagcaaa tgaaggatta catgggtaaa acttttagttt 120
ctgtcacgaa ggaagggttg gagttgcctg aagatgaaga tgaaaagaag aagcgtgaag 180
aggataagac taaattcgaa agcctttgca aggttatgaa gaatatcttg gataacaaag 240
tagagaaagt agttgtgagc aaccgattgg tagattcacc ctggtgtatt gtaacatcac 300
aatatggctg gacagccaac atggaaagaa tcatgaaggc ccaagctctt cgcgattcct 360
cgaccatggg ttacatggct gcaagaaaca cttagaaatt aaccccgatc attctgtgat 420
tgatacttta agacaaaagg ctgatgctga tccaaaggat aaggccgtaa agatttagtt 480
atcttacttt tcgagacagc tttgctgcat ctggtttact ttagatgaac cccaagtccg 540
ctnaagaatt                                     550

```

<210> 1462

<211> 312

<212> DNA

<213> Ctenocephalides felis

<400> 1462

```

attgnaactt caagaattgt acgtaaaggc tttgactaat gaggagtgc aagctaaatc 60
accaattcca ccaacgaccc aagtctgcac acttttgaa aagaatcacg gagtatgctc 120
gggagattct ggtggtccat tgcttttggg tggcgagcaa gttggcattg cctcatttgt 180
tatcttcaaa tgtgcaatgg gataccctga ctatttcaca agattgtctc tatatgtaga 240
ttggattgaa caacacatgg attaaaaata ataaaaataat aatttaattg aaaaaaaaaa 300
aaaaaaaaaa aa                                     312

```

<210> 1463

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1463

```

gtcaaacatc acaaaaatat atagctttat gtgtcacaaa tgattacact tttatcgtaa 60
tgatataata caaaataaat acaatttctt acatgctatt attataattc aatattaaaa 120
catttgactt ataataaac aatgaatttc ttatatattt taatatgctc tctttgtgctg 180
gtagtaaatg ccggtgggga tacattagtt ttattagaca atcttgcaat taaagaaact 240
cattccatat tttttaaaag cttacaagat agaggttatg ttctaacatt caaattggct 300
gatgaagcca atttagtttt atctaagtat ggagaatatt tatacaagca tttaattcta 360
ttttcacctg ctgtggaaga gtttgaggga tcattaagtg tcgaggcaat tcagaattca 420
tagatgaagg tggcaatggt ttggtagcag gaagtgaatc ctggtgatgc aattcgtgaa 480
tagctctgaa tgcggtttga ggagatgagg aaggacactg tatggacatc ttaatatgat 540
ggtctgataa                                     550

```

<210> 1464

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1464

```

gtcgtttttac atgcgccgga cagacatact tcagcgcgct ttaccaacaa tgcgtgcaag 60
cgccttttate cgagtgccttg gcgacagctg cacctccacc accgccacca ggaccaggac 120
catcgcaacc ctttgcttg gcgacagctg gattgttttt ggattacact gataattcctt 180
gcaaattggtta ctacgagtgc acattaaacg ctcaagggtgt attcgacgtg gcccgatatg 240
cttgtgcagc tgagttatat ttcaacacgc ttctgcagca gtgcgtacct gcataccagt 300
cagactgttt aggtgcaagt gtcacttctt ccccatccat accatcctta ccatccttac 360
catctttccc aaccttgcca acatcttccc caacagcagg atttcctttt ggccgaaaat 420
ctcttgatat gcaaacaaaa actggaacta aatgtacaaa aggagaagtt tctaaagacg 480
attaaattct acatgtccta gtgagtgtgt atatgaaatg ctattgatat acatcaagct 540
tataaggatat                                     550

```

<210> 1465

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1465

```

cggttaacgtt gggttttctgt aacgtattat atatacaagt gtgtggatta attaaatatt 60
tacaatggca actgaagtgg taaacaacgt gcaagtcacc gagaaggatg tcaaagagga 120
gttgcccagag aaaaaaattg aagaagaagc cccggccaca gagaaatctg aaaaggccga 180
tgaggctccg gcttcgaaga ccgagcctgc accaccgaag gtgctcgtgc ataaaacaaa 240
cttcgaaaag gataccgtgt atctttacca attctccaga actcctcttt tgccatcgat 300
gtcgccgtac tgcttgaaaag tggagacctg gttgcgtttg gcaggaatca aatacgagaa 360
tgtcgaccac aagatgaaat tccgcagcaa gaaaggacaa ttgcctttcg tcgaattgaa 420
tggtgaagaa attgctgcag tgccatcatc atgaaggagt tgtcaaacct acggaaagga 480
tctggatgct gtttgacacc agacacgcat gtctccatgc tatggatcca tgattgaaaa 540
ccacttgat                                     550

```

<210> 1466

<211> 546

<212> DNA

<213> Ctenocephalides felis

<400> 1466

```

tttttttttt tttttttatt tgcattgnga tagccggccg attgcattca gttctaaaat 60
gccgatcaaa agtatcaaag ctcgtaaat ttctgactct aggggcaatc ctaccgtcga 120
agtcgattta gtgaccgaat taggattatt tagagcagcg gttccttcag gtgcttcac 180
aggagcttat gaggtcttg aattacgtga taatgataag actcaatata tgggtaaagg 240
agtatccaaa gcattgcaca atattaatca attgattgcc cccgagttaa ttaaacaatc 300
ttttgaggtt actcaacagg aagagatcga caaatitatg ttgaaactgg atggtactga 360
gaacaaatct aaatttggag ccaatgctat attaggagtt tcattagctg tgtgcaaagc 420

```


tggtgctgct aaaaaggggtg ttcctctgat caacatattg cagatttggc tggaaataaa 480
 aaaaatgngc ttcctgtcca ctttcaatgt atcaatggcg gagcatgctg gaataactgt 540
 ttcaga 546

<210> 1467

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1467

gtaaaataat taatttattg ttaattacat tataaaataa gctaatatgt aactcatcac 60
 aaaaatagca ttttaataat tacaatggcc cacctaaaca agagtttgaa accaataaat 120
 tactccaaca cgtcattcag acaacttttt cttgtattat ttttcgtatt ggttttcgcc 180
 ctgagtattg ctttattagt tttatttcca tatagtggaa aaagacatga aatctataag 240
 gatataagtt tggaagatgt cataaacggt ccagaacaaa tcattcatga tcaagctccc 300
 tcagcaaatc ctgcgaatcc aaaatgcagc cactgggatt gttttaatgt gtatcgctgt 360
 ggcaataaag ggcacaatca aatatctatt tatatttata caattaaaaa atatcttgat 420
 gctgatgata tacctgcaact ggtatcatgt gcaaagaatt tattttattt taaaaactat 480
 aaaagatnca aatttacaca tcaaatctga tgaggctgga tattggtcca agattgtact 540
 taaatcaaac 550

<210> 1468

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1468

gaggaaagng gcaaagatga tgacgaggat anggaagcaa ctgaaaatga cacaacaaaa 60
 gcagtgcctg gaatttcttt tgtcaaattg acatgcgtgc attgctctac aaaatgtgct 120
 acattgaagg agtatgttac ccatttgagg agcaaaatac acaactcata tatgagccgt 180
 ttagctgcac gtcacaaatc tcgattggcc aaaatgcgcg cacaacagag gaatgctcag 240
 cgagagatcg atgaaaagaa tcaggaggac tattatttaa agacaaagtt ttgtcctact 300
 tgcaaaactta attacaggca actcagagct gaacatcaag ctctgaagc acataacgat 360
 attaagaagt atttgaagcc ttattgtagg acttgctgta tgacttttcc aagtcctatg 420
 cgttatgaag tacatatttg ttcaatgcac acataaaaaca taaagctcat ctggagtatg 480
 taaaacacaa aaaacaagat atgaagaagt tggtagtgat gaagctgaaa gaatggattg 540
 gatatttatg 550

<210> 1469

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1469

cagaagctca agccagagcc gaagaagtcg aggaaatcag gaggaaatac agtgccagaa 60

```

tccaagaaca agaggagcac atcgagacct tgttggtcaa gatcagcaat ctggagaaac 120
agaagagcag actgcaaagc gaagttgagg tcctcatcat cgatctggag aaagcaaaca 180
gcgctgcccg cgatttgagc aaacgttgcg agcaattgga acgtgtcaac atcgagatca 240
aatcacgtct tgaggagacc attcagttgt atgaaggagc ccagagagat ttgagaacca 300
agcaacagga gttgcagagg gtcaaccacg aattggacaa gaccagggaa cagaaagatc 360
agttggccag ggaaaacaag aaattgggag acgaattggg agatgctcgc aaccagttgg 420
ccgaatacaa cagacgtttg cacgaattgg aactcgaatt gagaagactc gagaatgagc 480
cgaagagttg ctgctgcacg aagaggccga actgtcgcaa ggccaagaca cgttcacgt 540
tggnacgat 550

```

<210> 1470

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1470

```

gcaantcgca aacgagtttc agagcacagc ggctgcgcat ctgttaagct caacggctat 60
agtttttcag tattataatt tgtattaagt cgaagtaaata acaaacatg agggaaattg 120
tgcacattca aaccggacag tgcggaaacc aaattggagc taagttctgg gagatcattt 180
ctgatgaaca tggaattgac ccaactggag cttatcttgg agatcatgaa cttcaattag 240
aacgtatcaa tgtttattac aatgaggctt ctggtggaaa atatgttcca cgtgccattc 300
ttgtggattt ggaacctgga accatggact ccgtgcgttc tggaccatac ggtcaaattt 360
ttaggccaga caattttgtt ttcggacaaa gtggtgctgg taacaactgg gctaaggagc 420
attatactga aggtgctgaa ctagtgcact ctgtttggat gttgtgcgta aagaagctga 480
atcttgtgat tgcgtcaagg ttccactacc cattcttggg angtggntc cttgnatggg 540
acactattga 550

```

<210> 1471

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1471

```

ctgtgccaga catccaaaaa ccagctcctg aatttgacag tactgctgta gttaatgggtg 60
aatttaaaga cattaaactc agccagtaca aaggaaagta cttggtacta ttcttctatc 120
cattggactt cactttcgtg tgtccaactg aaatcattgc cttctctgac cgcattgatg 180
aattccgcaa gattggatgt gaagttgtag cagcctcttg tgattctcac tacagccact 240
tggtttggat taataccgca cgtaaagaag gtggcctggg acaaatgaat atcccaactc 300
ttgctgataa atccatgaaa attgctcgtg attatggagt tttagacgaa tcatctggag 360
ttccattcag aggtttgttt atcattgatc ccaaacaaaa tgtagacag gtcactgtta 420
atgacttacc agtaggcaga tctgtagatg aaaccttgag attggtcagc cttccaatta 480
ctgatgaaca cggagaagtt tgccactggc tggagacctg tagtaaaact atgaaagcgg 540
accaaacttc 550

```

<210> 1472

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1472

```

cagcaactca ttttaatatgt gtggatcctg atgcgaaaaa tgaacatgg atattacaca 60
cacatattgc agcagtagaa cgattaccgt tgagtactac aggatgccca cttcaaattc 120
gatgcaaaac attccaatca gtaatatctt ttataagaaa agaaaacgat agccatgacg 180
tttataatac tttgttgcaa ttagcccaac ctgtttctat cgatgatctg tattgcttcc 240
agtacaccat aaataaaaaat gatatgcata agagcgaagg ttggaattat ttttaatttag 300
aggatgaatt taaaagaatg aatgttccaa atgatgaatg gatttacaca gatttaaattg 360
aaaattatga gctatgtgat acttataccta attgttgtat gtgcctgcta acagcacaat 420
aaatatgtta caaggaagtg caaaatttcg atccaaagga agataccggg ctcacatatt 480
acacaagaac aagcttcaat atgcagatca gcaacctttc tggttcagtg cacgatgtct 540
gagatgacaa                                     550

```

<210> 1473

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1473

```

aaaattttta ttttaattat tatgtgttcc tttatcattg atgcgagaag taaaagtttc 60
gaaataaagt taagacggtg gaaaagtcct cgacttcaat tgattgaaat ggatcgaaat 120
atgcgtatag cggtttgga agatattcaa gaaaacgaaa gctattattc ggatccatct 180
aaacctaaac ctctccagg tcctaaggac aatgatacta tagcaattta taaattttta 240
gatactgaat tttatgctga ggttgaata ggccatcctg taaagtattt caaacttgtg 300
gttgacactg catgggcaga aacatgggtg gcctcgaaac aatgtgggtt aaagtgtgtt 360
ggatgttgga atcttaataa atatgactct ttggcatcat caacatttca agaaaacggt 420
aaagaatttt cttttggctc agcaaagaac cataacaggg tcttctcaat agaaagtttt 480
atattgccac ataaatgtta aaatcagact ttggggaagt acatgtttgc cttgcactct 540
gtttcaaaca                                     550

```

<210> 1474

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1474

```

ccntaccgcc gatttggttcg aaagaagaaa catcgcccaa gtcacacttt gtttatatgc 60
tttgggcaga cttacacaaa aacatcccga atacacagga ccatcattag gccccaaat 120
ggcagaaaag aatgaaagga cgtttactga agagcaactt agagcccatg aaggagaatt 180
gaacttgcaa atgggataca acaaagggtc atcccaatct ggccatgggt gatttggtta 240
cactaggcat atgtaatttg ctgattttat acgtatttct gaaaatattc ctcacaagtc 300
tgacgacgat acagattagt agattcgagc acactttgtt caatgttatt ctgatacaga 360
ctcaaaatta acacaaacta acagaataaa cagcacattc acaaacactc ataactaata 420

```

gatatagaca caacactaat tttaacacaa tccaatacat aatgacatat aaaaataaat 480
 taacatctct cgcattaata cgatacaaaa atttaattac taacaaacat aatttacata 540
 ttgaaatctt 550

<210> 1475

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1475

agctcacaga attcagggct agctttaacc acttcgacaa gaaccgcaca ggacgttttg 60
 cgctgatga gttcaagtca tgcttggtt ccctcggcta ctcgataggc aaggatcgct 120
 aaggcgattt ggacttccaa aggatttttg cagtagtcga tcccaatgga actggatacg 180
 tccacttcga tgcattctta gatttcatga cccgcgaaag tacagacacc gacactgccg 240
 agcaagtcac cgacagcttc agaattcttg cctccgacaa gccatacatt ctgcccgatg 300
 agttacgcag agaattgccca ccagaccagg ccgaatactg cattcaacgt atgccacctt 360
 acaagggacc caatggtgta cccggtgctc tcgattacat gtccttcagc acagccttgt 420
 acggtgaaag cgatttgtaa ggtagaataa attttcataa acatttaagc aaacatttga 480
 caagtacaca taaaggtaaa taatgaagtt atgagagtta cgatcaaaat tagcattng 540
 ct 542

<210> 1476

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1476

gtttatcggg gtcttgggtc atgggaccag ngnggcatca ttaatcatga atttaaatag 60
 tgtcgttact aatttctcag gtcttgtgac gagtccgatg ttgaaaaagt attccgttcg 120
 gaaagtggcg gtggccggat cgctcctgac cgccacgggt ctcatgatca gcagtcaggc 180
 acgtccctg tggctgattc tgtttggata cagtttttg acaggtctag gtttgggtt 240
 tataatgcct tcggtgttct tggcagtgcac ctcttatttt aaggtgctcc gaggccgggc 300
 ggtgggcctg gcagcagccg gtaccggcct gggacaaatg gtaatgcctc atgccgntcg 360
 agcactgttg gacgaatata gtttcanagg agccactctt attatggccg ctatggcttt 420
 acaaggggtg gtaggcgctt ctttattcaa cccgtaaaga atacatgaac cngtcnatga 480
 cgnccgaccg agaaaaaatn ttactngac cngatttacc cctgacgctc agacctgaag 540
 aa 542

<210> 1477

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1477

ctccattctt tcttaggttt cattctttta agctgaccat cccaaaccaa atcaaccaac 60

```

cctccttgtt tggctatcac tgctttcaca cgatttgcaa agtctattga actctctttt 120
tcttctctaa acattggagg taagtaccaa acatcacata caatcgccca tgaagacatc 180
atcatgtata aataatgcat cattgaatac tttgaactgt tccaaaaggc atctccaaac 240
tttgatcat atttgatggc tacaggataa attactctc cgacttcaaa tgagcctttt 300
ttaaactgca ttaccgatgt attattgata catgttcctt ctggaaatat taatattggt 360
ggattattag gatcagagat atgctgccga agtctgtagt gacggcagtt cgatctttga 420
cttcagagcg ttcaaacc aa atgtgagggtg atgccctagc cagcgccctt tgcagtatac 480
ctaggaaacc atcatgtctc tgccaattag agaatagcaa ttatcacaca tgagaacaag 540
ag 542

```

<210> 1478

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1478

```

cacnaaggca aaagtttgta catttccaaa gngatggatt ccaaaccctt tgatcccgtg 60
gaaaatgggc tcgataaaga cttcaggctt actaaattta ctgaattagg aggggtgaggt 120
tgtaagggtcc ctcaagatgt tttaacaac ttacttgagg gactctgcga tatggagaag 180
gccaagtcca gtgatagtaa ggaagtggga attggattgg actgctccgt tactcctctc 240
gaagaaaact ggtacctttt acaacaaca gattttttct atcctttaat tgaagatcca 300
tatttaattg gtcgaaatgc ttgtgcaaat gtggtcagcg atttgatatgc aatgggtgtt 360
accaaaatta caaacatgat gatgttatta ggcatagta ataaatgac tccgaaggaa 420
cgagattgtg ttattccttt aatgatgaaa ggatttaaag atggtgctaa agaatcagat 480
acaactatcc aggtggacaa acagtcttga acccttgtgt attattggtg ggtcncacat 540
ca 542

```

<210> 1479

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1479

```

gntatggaaa aagccgaaaa gctgggccat cgcgttcaaa aatgtgtggt tgcgctcat 60
ctgaaacgtg tcaactctgg aaccagcga g gatcaatg gagtcgagac tcctatgaca 120
gatggccgcg accattggtg gcatgaggaa atggacgaag ttgaaccagc atgttacc 180
gaatggatgg ctgctgagga tcattgttc atgctttata caagcggctc cactggtaaa 240
ccgaaagggg ttctacatac tacagggtgt tatctattgt atgctgccac cacatttaaa 300
atggtttttg actacaagcc cgatgacatc tactgggtgca ctgctgatgt aggatggatt 360
actggacatt cgtatgttgt ctatggacca ttagctaagt gcgccacctc cgttatgttt 420
gaagggacgc cattttatcc ggataacgat agatattggg cggatttgaa aaatacaaa 480
tgaccagtt ttacacagca ccaaccgcat aagacttgat gaagttcggg aagaccagtc 540
aa 542

```

<210> 1480

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1480

```

ttgagaaact tctcaaaatt gataaaaaag ntgctgtagt aatggccatg gatatgttgt 60
tagcaggagt tgatactaca tcaaatagta cagcattttt gctgtatttc ctggctacga 120
atcaaaaatg ccaagataaa ctacgtgaag aaatcagaac aattctgcca aataaggatt 180
cacatgtaaa taacgaatca tttcaccatt tgccgtattt gagagcttgt atgaaagagt 240
cgagtagaat attgccaata attggaggca ctgttaggaa agtaccagtc gatattgttt 300
tatcaggata tcaaattccg aaggggaccg aggtggttct aagtcattct actacatcaa 360
tgaaaagcag tcaattccct gaacctgaaa aattcatgcc agaacgatgg ctgagcagcc 420
aggaatcaga aggatgtcct ttagcaaaaa atgctcatcc attttcgcac atgccttcgg 480
tttgggcctc gcactgcgtg ggaaaagatt gcagatttgg aaatggaact ttatatgaag 540
ta

```

<210> 1481

<211> 539

<212> DNA

<213> Ctenocephalides felis

<400> 1481

```

taaaaaat t aatngcttat tcttcaggng ttcataaag aatagtatta ggaggaattt 60
ttactataaa tatattaggt attgtaggta ggtttatttt aataatttct catggattat 120
gttcttctgg gatattttgt ctttctaata ttatttatga acgatcagga agacgaagaa 180
ttttaattaa taagggttta ataagattta taccttcaat aacattattt tgatttttat 240
tatgtagatc taatatagca gctcctcctt cattaaattt attaggtgaa attatattga 300
ttaattctat aataagttga tcaataatat taatagtatt aattataata atttcattta 360
taagagcaag gtatagacta tatttatttg cttatagtca acatggaata agaagaataa 420
gactatattc ttgtcttctg gaagggttcg agaatattta ttattatttt tacattgatt 480
ccattaaatt attaat t tta aaaaagagatt attataatta tttataaaaa aaaaaaaaaa 539

```

<210> 1482

<211> 540

<212> DNA

<213> Ctenocephalides felis

<400> 1482

```

ctaaticgaag tgatcgtaaa atattaaatn gacagctatt tgttaaaaca attgtgcatt 60
atagaaaaaac atttaagtga aaattaatta cgtttcagca gaaatacatc ttctttgtaa 120
at ttgggggtt aataatcttt caaaatgcag atctttgtga aaactctcac agggaaaacc 180
attactttgg aggtagaacc ttcagatacc attgaaaacg ttaaagctaa gattcaagat 240
aaagaaggaa tcccaccaga tcagcaacgt ttgatttttg ctggttaagca attggaagac 300
ggcagaactt tgtctgacta caatatccaa aaggaatcaa cattgcattt agtattacgt 360
cttcgtggag gtatgcaaat ctttgtaaaa acattgactg gaaaaactat tacattagag 420
gttgagccct ctgatccatt gagaatgtaa aagctaaaat ccaagataaa gaaggaattc 480

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cccagatcag cagcgtttgt ctttctggc aaacaattag aagatggaag acttgtctga 540

<210> 1483

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1483

gtnacattga tcggatctgt tagcaaaggc tnccaaantg ccgaaatcga tgaatgttcg 60
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 gcttttcgat caggtggtca agacgatcgg tctgcgcgaa gtctggtttt ttggactcca 180
 atatactgac agcaagggtg atttgacgtg gattaagctt tacaaaaagg tcatgaatca 240
 agatgtcaaa aaggaaaatc cacttcaatt caaattcaga gcgaaatttt atcctgaaga 300
 tgtagctgaa gaacttatac aggacattac atctcgtctt ttttatcttc aggttaagaa 360
 cgctatactg tctgatgaaa tatattgcc tcctgagaca tcggttcttc tagcatctta 420
 tgctgtcaag cccgacatgg agattttcaa aaagaccaac actcttctgg attttggcga 480
 acgatagact gtaccacaaa ggtaatgga tcaacacaaa atgtctaaag aagaatggga 540
 ac 542

<210> 1484

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1484

cagacactga caaaggcaaa aatgggtcgt cgaccggcca gatgttatcg ctattgcaaa 60
 aacaagccct accccaaatc tcggttctgt cgtggtgtgc cagacgctaa aattcgtatc 120
 ttcgatttgg gtaagaagaa ggcaggcgta gaagattttc cactatgtgt gcatcttgta 180
 tctgatgaat atgaacaatt gagttctgag gcactggaag caggacgtat ttgctgtaac 240
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 ttccatgtta tccgcatcaa taaaatgtta tcgtgtgctg gagctgatag gctccaaact 360
 ggaatgcgtg gtgcttttgg aaaaccacaa ggtactgttg ccagagttca catcgggtcaa 420
 ccaatcatgt ctgtcgttcc agtgacagat acaaggccgc tgtttagtag gctctgcgtc 480
 gtgctaagtt caagttccct gcagacaaaa gatctatgtt ccaagaaatg gggattcact 540
 aa 542

<210> 1485

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1485

cacaagttct attcaaccag atagaatctt acttatggat acgtttttcc aaattttgat 60
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 tgaaaatttc aaacaacttt tgcaagctcc agtagatgat gtcaggaaa ttttattgac 180

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acgttttcca atgcctcggt atattgatac cgagcaaggt ggatcacagg ctcgattttt 240
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aggagcacca gtattgactg atgatgtgtc tcttcaagta tttatggagc atctaaagaa 360
attagcagta tcttcaaatt cataaaatta tataaagaca gaaatagata tacaatctt 420
attttatctg taatattgtg tgtcagtcct tatatttgca atatagataa gtaataaatt 480
caattgatta tgaacctaaa tacattgata tattaagaaga acatttacac taaaaaaaaa 540
aa

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<210> 1486

<211> 540

<212> DNA

<213> *Ctenocephalides felis*

<400> 1486

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acagttagat aagatgaagt ctttggtgct cttggccggt ttggctgtag gttttgcaaa 120
cgctgaatat tgttacgatg aaagtgttac tgcttggtca tcgactgccg ataaggagga 180
tctcccccac tgtaacgctc tctactccgg tttccacact gtggctgccg atttatcatc 240
atacgtaaaa agagaagtcc tatactccta cgactacttg ctgatgtcca cacactttgg 300
aaactatgaa aagaatcgtg ttggctttga aaaactcttc aagggcctct ccgacaagtc 360
ttgggaaaac gcaatcaatg tcatcaaata catcaccaag cgtgggggca ctgtcgactt 420
ccagactact cacaacgtca acactaccg tgtagccgaa acatcagaat tggaaagttt 480
ggctagggct ttggagaatg agaaagtgtc cgctaaggat gccaggctat tcacaaacgt 540

```

<210> 1487

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1487

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caggagaaag cttcagttcg tgcacactaa atgtgttagt accaggcgag aagaaaaaga 60
caccagcttt cagcactttc ccagagtccg ccagcgtgca agagggcgag agtgcacgt 120
tcttagttcg cacagaagac gaagttcttg gacttcaatg gataaaagat ggtaaaccta 180
ttgacgagaa gagctctcgc tatcgattca caatggaggg caaaacgacc ttccgattag 240
agatagtatc ctgcgccagc atagacgtgg gccaatacca agccaaagcc atcggttaaga 300
caggagaaac attcgctcgc ttctcagtga atgtcgcagc cgagcattga gccgaacaac 360
taaattaata accgatcctg cacacggctt aggccaaaaa acgagacgac tcgcgttgaa 420
tcgcgagata tcgtgttaac ttaagtttat taaattatta tgtttatatg aataaattat 480
tagtgtgatc taagcgtggt ttcattataa ttgccttgc cacttcgctt atatatangc 540
cg

```

<210> 1488

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1488

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aacgtagaga tcagggcggtg gtagtggcct tgaaggatgg ttttggttt cttcgttgtg 120
cagaaaggga gccaaactg tttttccact ttaccgaggt tttggatgtg acgagagaga 180
tctccatggg agacgaagtg gaattcacag cagtacaaga tcctaatagc tcttttgcta 240
attttagaca cagcgctata aggattaagc atttacctcc gggtagtcta aaattcgaaa 300
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gcaaattctca aaacgggtgt ccaacacaaa acggcggtcc tccagttcca gaagggggca 420
tgatttctta tcaaagcaac ggtcaaaaga aatcagttcc tttctttgca aaagattgtg 480
atcggaacc tagaatgggt gataaagtga tttcaacatt agtcagggtta agcgtaataa 540
ag

```

<210> 1489

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1489

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gttttggtca gcctgaaatt gcaattggaa caatccctgg agctggtggc acccaacgtt 60
tgaccagatc tgttggcaaa tctaaggcta tggaaatatg tcttactggc aacatgggtca 120
cagctgaaga ggcaaaaaaa atgggcttgg taagcaaggt attccctgct gataaattgg 180
tcgacgaaac tgtaaaatta gcagacaaaa tttcatcaca ttctccactt attgtctcat 240
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agaagagagc attccatgct acatttgcca cttaaagacag attggaagggt atgactgctt 360
tcgtagagaa acgagcacct aactttaaga atgaataaaa agactactcg aattttataa 420
ctctatatgt atatatttta cattaccttt gtaataggta atatgaataa cctctttatt 480
tacctgcatt tgatatactt aatgatattt gatataattc ttatatgatg attccattat 540
tg

```

<210> 1490

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1490

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aacaggcacc atcgagacaa ccagtctaga ccagtacgac agaatacatga acgttaacat 120
gagatctgtg taccatttga caatgttagc agtgcctcat ttgattgaga cgaagggaaa 180
tattgtgaat gtctcgagtg ttaatggtat acgttctttt cctggtgttc tggcttataa 240
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gcaagttcgt gtttaattctg ttaatccggg ggtcattatt actgagatac ataaacgggg 360
gggaatggat gatgaaactt ataaaaaatt cttagaacat tgcaaaaacta ctcacgcctt 420
aggacgtcca ggacaagtaa gtgaagtatc caatgccatt gcgtttcttg caagcgagca 480
cagcagcttt attactgggt cttcgttacc ggtgatggag gcagacatgc ctgtgccac 540
ga

```

<210> 1491

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1491

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gnnaattatt ttattaagcg cattatttgc gngtgnatt tgctccttta acgcggaagt 60
acaaaatcga atcggttggtg gcaatgatgt aagtatttca aaaattgggt ggcaagtatc 120
tattcaaagt aataaccaac atttctgtgg tggttcaatc attgctaaag attgggtact 180
gacttcttct caatgcgtcg tggacaaaca aagtccaccg aaggatttaa ctgttcgtgt 240
tggaactagc actcacaatg atggaggaaa agtgtatgat gttattgaaa ttataaaaca 300
tccgaaatat aataaagcag tgccagatga ttttgatgtt gcacttttac ggatcaaaga 360
gccaatatca ttactccat gcacagtaac tcctgtaaaa ttaatacaat cgggaaaaga 420
agtcggaagg gaacaacttt gagtgtaact ggatggggcc cacgaangaa tgggggcca 480
tttcgcaaag ttcaagaagt taaagttaaa gcttactcaa gtcaagaatg cangaacagc 540
at

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<210> 1492

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1492

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aaaaaaacaa gcttttttaa cgaaatattt ngcaaaaaga gaaatatata aacaaactta 60
atgtctgaaa caatataaaa taatattttc aacgctaacg cttaaataat tccaaaacaa 120
atcatgagtg actattttct tttatgttaa cctctttacg caaagaaaat gtttataaac 180
ttcaaacaac gttaagggtga taaatgttta cctaataata ataataataa gtttattttg 240
attttggtga taaaaacatg tcttgagggc tgctgttgaa gttttaattt gcaagtgtta 300
gatacaactt aataaaaaat gtctcaatga tgacaataac aaaaaattct tttaccaag 360
tgctcttgtt atttataata tgatatacaa aatgcccccg tttagacgta aaaaatctgg 420
aaagtctttt ccagttaaag tttgcacttt ggacgctgag ttagaattta atttggagtg 480
gaaagcgaca ggcaaagatt tattcgaatt agtttgccgg acgattgggtt acgagagacc 540
tg

```

<210> 1493

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1493

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ataaatatcg ctgtatttga ttacacgat ggctgcaaga ttgaattcat tgtttaaac 120
agatttcaca aattacataa aacgtttaa cagcgttcaa atacgttgct taaatttgca 180
agaatatcaa agtaaaactc tacttcaaaa aagtggcgtt gccgttcaag cctttagatt 240

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```

attagataac accgaaaaca caagtgtctt aaatgatttc aaagtccccg aatatgttat 300
caaggcccaa gtttttagcag gaggtagagg caaaggccat tttgataatg gctttaaagg 360
tggtgttcatt ataacaagg accctaaaga aatattgccca attgctaaaa atatgatggg 420
tcacagactt attacaaaac aaacaaaagc tgaaggata cttgtcaaaa agttatgggtg 480
cacaaagcgt tgacatttgc gggaaacata ttatgtatca tcatggcaga gctcatatgg 540
cc

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<210> 1494

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1494

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ataaaaatag gttactaaag cagtttgcgt tttaaacggg gaagttaagg gaaccattta 120
cttcgatcaa agcgggtccag aagcacctgt cactactaaca ggatgcgtta gtggtttaag 180
caagggtgat cacggtttcc acatccacga attcggtgac agcacaaatg gatgtatttc 240
agctgggcca cattttaatc cccacggtaa agaccatgga ggacctgatt ctgctatcag 300
acatgtcggc gacttgggaa atcttgtagc tgatgccgat ggaaacgcta aagtgaat 360
aaccgacagt caaatttcct tacaaggtcc tatgagcgtt ataggcagaa cattggttgt 420
acatgctgat cccgatgatc ttggattagg tggatcatgaa cttagcaaga ccactggtaa 480
tgctggagct cgattggctt gtggtgtatt ggaatctgca aaccttaatt taaaattgta 540
tg

```

<210> 1495

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1495

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attcggtgcc agtgttccag aatcatggaa aagattagat ggtagaatcg taggaggaca 60
cgataccagc atcgataaac accctcatca agtatcttta ttgtactcca gccacaattg 120
tggtggttcc ttgattgccca aaaactgggt tttgactgca gctcattgca ttggagttaa 180
caaatacaat gtccgtgtag gaagtccat cgtaaacagc ggtgggtatct tgcataaagt 240
taaaaacat tacagacatc caaaatacaa cgcagctgct attgactttg attacgcact 300
cttagaactc gaaactcctg ttcaactcac aaatgatgtg tccatcataa aattgggtcga 360
tgaaggagta gatcttaaac ctggtacctt gttaactgtt actggatggg gatcaactgg 420
aaatggacct tcaaccaatg ttttgcaaga agttcaagta ccacatgtcg accaaaccac 480
ttgctccaaa tcttaccag gaagtttgac tgatcgatgt tctgcgctgg ttatttggga 540
ca

```

<210> 1496

<211> 542

<212> DNA

<213> Ctenocephalides felis

<400> 1496

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 gagggttctg caccttatca agtatccttg caagttggca acttccactt ctgtggtggt 120
 tcaattctga acgaatattg ggttttgact gctgctcact gtttgggtta tgacttcgac 180
 gtggtagtgt gaacaaacaa acttgatcaa ccagggtgaaa gatacctcgt agaacaact 240
 tttgttcacc aattcgacca ggaatcttta agacacgac ttgctttggn gaaagtgcc 300
 gccctatcng aattcaatga ttatgttcaa ccaattccat ttgggcgaaa cttatgttgg 360
 aggcggtgaa ntgctcgctt actggatggg ggaagactgg aactacttga atggaccaat 420
 gaactccaag acttacactg tacataaanc acaacnatgt gtaagnaaca attntccagt 480
 tacncagcac tttgannntt ggtgcagnga cnagccctnc accgtgactn tggtnccctt 540
 gg 542

<210> 1497

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1497

gcccaggtta gacgcgtttg tgaaatctag agttttttat ttagtaaatt cgtgcttcgt 60
 gttgaatata ttcgtgatgt ctggacgacg atcgggtact ggaagaactg gcccgcccta 120
 taactcccga gcgagtactg ggggtcctaa taggcactac aacgatggca atcgttataa 180
 taatactagg agtaactcaa actacaacca gcaggaaacag caacaacaga acaatcagca 240
 gcaatatcca cttgctcaag cacaagctcg caatcaaaat acatacaaca aaccggttga 300
 agtaaaagaa gaaataaaac cggaagtaat gccatcacct caaccacaac gtcaagctcc 360
 aactccagtt ccagcgccag ctctgttgc tacaactccc accaaagtaa aggagatga 420
 accccccgcg caagagcccg ttcagaaacc agaagcaatg caagaagatg gtggagatgg 480
 tgataacgat aaaaagcctg gaagaaaaac aaattgataa gtgaaaaact agcaacagcg 540
 aa 542

<210> 1498

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1498

gnntttgcaa gctttgaaga gtgttatagc agaccagttg ataaaatatg attttcagta 60
 ttatcatggt gattttcaat gtgatattcc tgtattagta tttagcgagg gcaaaagtat 120
 tctgatattt aaaaacaaaa ttcttttga gatagatgaa aacatcaggg acaactttga 180
 aaatatttta ccagctgtta aacagttttt aagtaatgaa actatggatc tcattagatg 240
 ttattttaaca atcatgaaat actcagaatt tgaagttaat cagggaattgc atgagattat 300
 agaaaatgat tttgtgaact tactgcaaga accaggaatg actccagaag atctacactc 360
 atattttaaca ctggccagat tgtatagttt atcccagggt ctaaggcatt taacaaaaga 420
 ctcttgcaag cagttaaaga tcttgagact aaaagaagat ctagaatcaa agccccaac 480
 acactgcgaa atgtgaattg atataaagtn ttctattctt gngatatatt aacttgtttt 540
 ga 542

<210> 1499

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1499

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ggtatagatt tgggtactac gtactcctgc gtgggtgttt tccaacacgg aaaagtagaa 120
attattgcaa atgaccaagg aaacaggact actccttcat atgtcgcgtt taccgataca 180
gagcgtctca tcggagacgc cgccaagaat caagtggcca tgaaccccaa taacacaatt 240
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aaacattggc ccttcgaggt tgtcagcgat ggaggtaaac caaaaattag agtatcgtac 360
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aaggaaaccg ctgaagctta cttaggcaaa actgtgacca atgctgtcgt tactgncctg 480
ctacttcaat gactcacacg tcaagccacc aaggattcgg gactatctcg gtctaaatgt 540
gt
```

<210> 1500

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1500

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ctaaggatca caaacctaatt gtttggttct ccttgaacgg tgaaagactc ggtactttta 180
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caatacctgc ccaagcatct gtgaggactt gcaatttctc attttcgggc aatcaagcag 360
catattcaac cgatagtagt aaatcctcat cttgtgaatt atatattatt gatgtgcgaa 420
atgcagatag cagtatgtcc aagctgatcc tattttaagg ataccaattc cagaatctaa 480
agttacagca atgttatggg gtcttttagat gaaacagtat taacggacat gaaaatgggt 540
ca
```

<210> 1501

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1501

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agaaatattc tcggtggcac agtcttcaga gaagcaatca tctgcaagaa cataccccga 120
ttggtaacag gatggaatga gcccatagtc atcggcagac acgctcatgc tgatcaatac 180
aaagccaccg acttcgtggt accaggaaag ggtaaattag aattgacatt tacccccga 240
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tcgggaagtc caatgagctt caccgtccac acttaccaag gacctggagt cgccatggga 300
atgttcaaca ccgatagttc aattgtagat ttcgctaag cctcattcca atatgcctta 360
aaccgaaaat tggccttgta cctatctacc aaaaatacca ttctcaagaa atacgatggg 420
agatttaagg atatattcca ggaaatttat gacaagcaat acaagaaaga atatgaagct 480
gtggaatctg gtacgaacat cgactgatcg atgacatggg cgctacgcaa tgaaatcatc 540
tg

```

<210> 1502

<211> 537

<212> DNA

<213> *Ctenocephalides felis*

<400> 1502

```

tttttttttt tttaaatatt agtgtaaactt ttaataaaat tatttactca atatcttaaa 60
attgtttgtg atggcacatg ttttataact gttttgaaaa tttcgagtca cttcttaaaag 120
ttaaaattta attaaagtca gtgtagtggt aataaataaa ttttggcatc aaattaagta 180
ttggatatca tggcgaataa taatgtgata aattttgggg caggacccgc caaactccca 240
gaagaggtga tgcttgaagt gcaagaacaa ttggtgcatt atggtgaaac aaaaatcagt 300
gtaatggaaa tgagccatcg atcaaaagac tacatgaaaa tcaacgatga tacacaaaat 360
gcagttaaag aattattcaa ataccggaca attcaaaata ctatttctgc aaggaggtgg 420
cacaggatgt ttgcagccat accactgaat attttgaaga ctggagttgc agattatgtt 480
gttacagggt cttggtctgc aaaagctgca aagaagcacc aaattggnaa gtaacat 537

```

<210> 1503

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1503

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gttaacgggtg gcggtgaaga aggagccggc gatgcgtctc gtgaaaatgg aagcgccgaa 120
gctcctggcc gtgacgacga taggaaactc tttgttggtg gacttagttg ggaaacaact 180
gataaggaat tgcgtgaaca ctttgggtgca tatggagata tcgatagcat taatgttaaa 240
actgacccca gtactggtcg atcacgagga tttgcattca tcgtgtattc atctcctgaa 300
tccattgata aagttgttgc tgtatctgaa catataatta acaacaagaa agtagatcca 360
aagaaagcca aggcccgcca tggaaaaatt tttgttgag gtttgacgac tgaagtcagc 420
gatgatgata ttaaaaacta tttcaatcag tttgggacga tcatagaagt tgagatgcca 480
tttgacaaga cgaagaatca acggaaaggt ttctgtttat acttttgaat ctgagcaagt 540
tg

```

<210> 1504

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1504

cgcagtcacc ctaacccttc tagtcatatg cgttttctac acctctttcg gagggatgag 60
 ggccgctcgtc tggacggaca cgcttcagtc catcgtcacc tgcggcgcta tgttcgccgt 120
 cgtctggata ggagtagcag acgtcggagg aatagcagaa gtcttcagga gggctgacga 180
 aggaggcagg atcatatttt tcaatatgaa tccaagtatt taccaacgaa catcattctg 240
 gagtgtcagt cttggactga caacatgtg gttgtctaatt cttggtgtca gtcaaagttg 300
 tatacaaagg ttcctgtctg tgccaacttt aaaggacgct agatgggtcca ttatctactt 360
 tacgataggt ttagtcttaa caaaatcaat atcctgcttc accggactat tgatgtatgc 420
 tcattacaaa gactgtgac ccttaagtac tgggtgatgtc aaaaaagcag atcagatgtt 480
 gcctattatg tccacgacgt ggcaggtata taccaggact ataagtttat tcgtactgng 540
 tc

<210> 1505

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1505

ctaataaaga gatggctgga aaacgacgag ttataatcga cgtagatgcc gggtcggacg 60
 atgccatagc tttgctcatg ctgatagcag cgcacaaacg gggatgatgtg gaactaatgg 120
 gtatcacttg tgtggcgggt aatacaaatg tggataatgt tgcgataaat gttctacgtg 180
 ttctgggtgc tgtaaaggct ttagatatcc ccatttaca aggtgcatcg gaaggtctga 240
 ttctctaga tattccaaat tccacagaat ctgagtcca tgggtggtgat ggatttggtg 300
 atttagagca ctatggaaat gatcctgatt tgagtttaat caaaccagag catgcagtaa 360
 attacctaatt ttctgcagct aaacagtatg aaaatgaaat tacttttata tttgtgggcc 420
 tctgacaaat gcagcacttg caattaaaat gtatccagggt tttctagaca aaactaagga 480
 tgtgtantaa tgggtggcaa ctataaagcg tgggtaataa aacaagaccg cagaattaat 540
 tt

<210> 1506

<211> 542

<212> DNA

<213> *Ctenocephalides felis*

<400> 1506

aaaatactag ttttattgcc attaatattt gaaaaatattc attgagaaaa tgtcaatatt 60
 attatgcgcg ctattttttg cttcgacgct tagcaatgaa actttgtcga aacaccatca 120
 agttaagaat cgtcgatttt acatagatta tgataaaaat acattcatga tggatgacaa 180
 accatttcga tacatagcag gttcattaca ttattttcgg gtacatccgc aacaatggaa 240
 agaccgtttg gaaaagctaa aagcagcagg tttaaattgcc gttgatacat atgttgagt 300
 gtcacttcac aattttgatg aaggaaaata ttggtggggc agcaacgccg atttgagca 360
 atttattaaa actgcacaag aagtaggatt gtatgtaatt ttgagaccag ggccatacat 420
 ttgcgctgaa cgtgatattg gaggccaaacc ttattggctc ttatccacc agaaaaagat 480
 attaaaccaa ggacactgtt tcgtatatgg aagcagcacg agatggatac aagaatatta 540
 aa

<210> 1507

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1507

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cttgaccgcc accgagtctg aagtggctgc actcaacagg aaggtgcaac aaattgaaga 60
agatttgga aaatctgaag aacgtgccgg aagcgctacc accaaattgc ttgaagccac 120
acaagctgcc gatgaaaaca accgtatgtg caaagtattg gagaacccgc tcacaacaag 180
atgaagagcg aatggaccaa ttgaccaacc aattgaagga agcacgtctc ttggctgaag 240
atgctgatgg taaatctgat gaagtatcac gcaagttggc cttcgttgaa gatgaacttg 300
aagtagctga agaccgtgtt aagggagggtg acagcaagat catggagttg gaagaagaat 360
tgaaggttgt aggaaactcc ttgaaatctt tagaagtatc cgaagaaaag gccaaccaa 420
gagtagaaga attcaaacgc caattgaaga ctttgccgtc aaacacaagg aaccgaactc 480
gtgccgagtt cgccgaaaag accgtcaaga actgaaaagg agtcgcaggc tgaagacnat 540
tggcataaca                                     550

```

<210> 1508

<211> 548

<212> DNA

<213> Ctenocephalides felis

<400> 1508

```

aacatcccat aataaaagca ttgtacagcc tagtggtaat gatcatattc gagggggtaa 60
tggtgctcca ctagaatgc aagatgttgt ccgtccaaa agatattctt gtcaaagacc 120
tggtggtatt gtaccagaaa caaacatgca aggccaaaccg cagcaacaac aacctgtata 180
tcaacagaac tactatgcaa ctgaatatac tccgcctgta gcaaatgaac aaaataattc 240
acatcaagga caacatatac cacaagcact aaatgggatg ccccaaccag ggggtcaggt 300
tgtacctcct aatatttctg tgccaccccc gcaaacaatg ccttatgtac cagaaccagt 360
tctacacag gtcataacca ctagtaatca agtgatgccg caacaagttc ttgccctcaa 420
tatcctcaag ttctatgcag tttaattcgg gaggacccta catggctcaa ataatacttt 480
tatccacaat ctttaggtat ctgtcctctc taacatgcac cccacacaat atctcccaat 540
ccctcata                                     548

```

<210> 1509

<211> 405

<212> DNA

<213> Ctenocephalides felis

<400> 1509

```

gattattcaa aagaaagaca atttagagga ttgcaaagta aaattgaagg cgagcataaa 60
ttttcagtta ttagacaagg agaagtgaag cagatatcgg ttggtgatat tgctgctcggc 120
gatatttgtc aaatcaaata tggagatctt ctaccagcgg acggtttatt gatccagagt 180
aatgatctga aggtggacga atcctccctg acgggagagt ccgaccatgt gaagaaaggc 240
gagtccttcg acccgatggt cctgtcgggg acgcacgtca tggagggcag cggcaaaatg 300

```


ctggtgacgg ccgtcggcgt caactcgag gccggcatca tcttcacact gctgggtgct 360
gcagtcgacc aacaggaaca agagatcaaa aaaaaaaaaa aaaaa 405

<210> 1510

<211> 482

<212> DNA

<213> Ctenocephalides felis

<400> 1510

caagctgtca aagctctggca aatatatattt aatttaataa tttttgtctg ttttaataa 60
aaaatgtttc ggagagcgt ttctagtgt actaaattgc acaaacaaac tttaggtaat 120
caaattgtgc aagtcaggaa ccatgggtga actgccatt accgctgtgc ttcacgtcct 180
tcaaaagaaa ttaactttct cgggtgaactt actggggctt taatgtggta ctggtgcttg 240
taccatattt ggactgaacc ggatcatatt ttaggagagt ttccttatcc tgatcctagt 300
aatggacgg atgaagagct tggatccca gccgagtaat gatggatagt taattgatag 360
aaataattaa atattgaaat ttaataagat atctggattg tatatggtag tgcaatttgt 420
atatagaaag tgaataagat gtgttaaagc gtagtgaaat ggaaaaaaaa aaaaaaaaaa 480
aa 482

<210> 1511

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1511

gctactcatt ttacgtaacg ttttagaagt gtgtgggtgt ggtgctaatt ttagcaccgt 60
agcgatcgtt tttattaagt tttttttatt ttgagtaata gttttaatat attttaccaa 120
aatgttgcat cttaagtcaa tcaccaaag tgcactgaaa cataaccct ccgaagtgtc 180
cacattgtgc aaagctctgc caacggccat ccaaacgcgc tcttactccg agcaccaa 240
tcccgatagg ctgaaggatg tcccaacaca tctaatcca agatttttcg acatgggtga 300
gtacttcttc caccgtgcct gccagatcgt cgaatctaaa ttggtcgagg acatgaaagg 360
aagcaaatg acagttgaag ataaaactaa gaaagtcaa ggtattctta tgtaaatgca 420
gccatgcgat cacattttgg aaattgctt cccattgcgc agagattcag gaaactacga 480
aatgattcag gggtaccgtg ctcaacacag cacacatcga caccaccaa ggaggttccg 540
tttcaatggt 550

<210> 1512

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1512

gtcacttgta gcggtttgtt cgattataat atttttacga aacaatgaaa gtaattattga 60
gaaacaaata atacaaatgt agttgatttc gtacatttta tagcaatctt cacgatggcc 120
gccggtccga tagcagaaag aaatcaagat gccactattt atgttggtgg tttggacgat 180

```

aaagtctcag aaagtcttat gtgggagcta tttgttcaat ctgggcctgt tgtgaatgtc 240
catatgccaa aagatcgagt aactcaaatg catcaaggat atggatttgt tgaatttctg 300
ggagaagaag atgcagacta tgcaatcaaa attatgaaca tgataaaaact ttatggaaaa 360
ccaattaggg tcaataaagc ttcagcacat cagaaaaatc ttgatgtcgg tgccaatgtg 420
tttataggaa atctagacac agaagttgat gaaaaattat tgatgacaca tttctgtttt 480
ggagtaattc ttcaaacccg aagatatgag ggatccaacc tgnaatcaaa gggtttgcac 540
cataaatttg

```

<210> 1513

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1513

```

ggcagttaac ctaccgtgtg gaataaattc gagggttttc tgctgaagtt gttattaagt 60
taatgatatac aagtctatca catatattta cgtactatct ttaagtgtga cagaattata 120
agtgtgcttt gtttataatt taagaagtga aaatagtaat taaagcagta aaatatggta 180
aatttaggtg acattttccc aaattactgt ttaaaaacat ctattgggtga tattaagttt 240
catgattacc tacaagattc atggggaata ttattttctc acccggccga ttttaccctg 300
gtttgcacca ccgaattagc cagggttgta aaactgatgc cagaatttga gaaacgcaat 360
gtcaaggtaa ttgccttgtc ttgcgataca gtagcttctc atctggaatg gtccaaagat 420
attttgagct atgcaggtga aatgaccaag acattcccat acccaatcat cgacgatagt 480
tcccgcgaat tagcagtaaa cttcgtatga ttgcccggcg agaaggataa ggatggatgc 540
gtgccgccag

```

<210> 1514

<211> 550

<212> DNA

<213> *Ctenocephalides felis*

<400> 1514

```

tcaaagtgga cgtagttaa atgataattg atttgtagta attgaaagtt ttgtatttta 60
ttttgttaaa atattttgtt aatttcgttg ataataaatt aataaaaaagt gcccgaaaat 120
gtctgcatct cctctggaac gattgtcaaa aacagagacc atcgagttga gggacaaaca 180
tattggaaaa tcctgccaat tgttcttcct agaggatcct ctgaagattg taagaggcga 240
gggtcagtag atgtacgacg agactggcac aaagtacttg gactgcatca ataagttagc 300
acatgttggt cactgccacc caaaagcagt agcagccgga gcccgcaaat gtccctgctc 360
tacactaaca accgtttcct ccatgacgag ctggtgatcc tggcccgag gatttcctct 420
cttttgacga acccctgagt gtctgctacc tcgtcaattc aggatcggag gctaacgatt 480
tggccttgag gtggcaagga ttcacacagg aaacaagatg ttatcacgct gcacagttag 540
tagtagatgg

```

<210> 1515

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1515

```

agagaactag cctgtgaaaa gatcgtcggc tttggggcag ccagcacgta ggtttctgac 60
tcatttcagt ttggtcattt ctgattggca tacatcattg ttctgcaact gtttttataa 120
gtttttacac atcttccaaa tcctgtgcag tttttttat ttgggaccac agtatataac 180
aagttattgt atgagtcaga aaaccgaaaa accagtacta tcaggtcagc gcatcaagac 240
cagaaaaaga gatgaaaaag agaagtatga tccaagtgga ttccgtgacg cagttatctc 300
aggtctcgaa cgtgctggca acgatctcga cgcagttaac aaattccttg acacagcagg 360
ctctaagctt gattatcgca gatacggaga agcactgttc gatattctta tagctggtgg 420
attgtagtgc cgggtggttc aatagcacia gatggagaaa agccccaac cagtagttgt 480
gtctcacagc ttctgaggat atggagtcaa tgcgaaacca ggagcagggt tcgtgaatta 540
tgctcgctta                                     550

```

<210> 1516

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1516

```

agaaagatat tccantgaaa agtgctattc tatggtttca attantnttg gatcacaaga 60
natacctact cgttnatnta aaatgaaaat tctaatttta ttcttaatca ttctttctat 120
gttttacctt gntcctgtg atgagcgcat ggtgaatgga aacgaagtat acattctaac 180
attttatttg caattgtcct ttncaagtaa ttttcaacat ttttgcggtg cancaatgat 240
cagtaagcga tgggcaataa caaccgcttt ttgtgctnaa aaaacgtcta tccatgcagc 300
tagagtacgt gctggaacca gcaaatataa tagnggtggt actcattacg gtgtggaatg 360
gntcgtccct catcctcgtt atgatagccg cgatcaaaat tcaatgtagg ttttaattntg 420
ataacanagg atttcaatga aactagaaga accgcctgcn agctcgtana ggcaaatgtc 480
gcttnctgta gctcctttgc cattctggat ggngatctga ncgatccang agcacctatg 540
taagaaatct                                     550

```

<210> 1517

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1517

```

ttaatgtcga cggaacgcct ttaacagtaa ataaagaagt atttgcata ttggatgagc 60
ccgcaccagg agtagtacct actcctgaac ctacacctgt accgaaaccc gagcaaaaat 120
gtaaaaaagt aaaatttagt tgcgtgaatt cgtgcagttc acccgaaatg cagtattgtc 180
cggaatatag agcagatccg gtaaggaat cctgtagccc agatcaagtg tgcgctgac 240
aaagtggata tctacagtgc accactaaag aaagtacagt ctgcaaagta caaggtttca 300
aatgtccgtc accatcgaga ttttatccaa atataaatga ttgtcaaagc tattattatt 360
gtgacgaaaa tagtatagga acccaatatt attgcccgca aattttgcat atgatccgtt 420
acgtcataat tgcggcctat ggctctgggc acaaaatgct atacagttac atgtctgcca 480
gcctaagggt cttccgtaca ttggtgataa atattgacgt cgatgtatgg ccggaagagg 540

```

accgtangca

550

<210> 1518

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1518

```

cgagtttata ttttattttt aataatttaa tttatattat tgaatgggag attattagaa 60
ttaattctat aataattatt tttagaatat ttttgattg aatatcttta atatttataa 120
gatttgattt aataatttct tcaatagtag ttaagtatag agaaagatat ataatagaag 180
attttaataa aaatcgattt ttattattag tattaatatt tgtattttct ataataataa 240
taattattag tccaaattta attagaattt tattagggtg agatggatta ggtttagttt 300
cttattgttt agttattttat tatcaaaata ttaaacttta taatgctggt atattaactg 360
ttttaataaa tcgaattggg gatgtgcttt attaattaga atttcttgga taataaatta 420
tggtagttga aattattttat tttatataaa atatataata aataatttga aataatttaa 480
ttatattttt gatttaattt ctgcaataac taaaagagca caaatccttt tcttcttggt 540
accagctgca                                     550

```

<210> 1519

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1519

```

ggtaaataaa taaaaaaaat acttttatga taacagaaaa aaaactacag gtttaatgaa 60
atcagttaaa atcagagtga attttaacat ataaatttaa atattataaa aatcatctta 120
gcttttacia acttaaatg caatgagtaa ttgtgtcga atattatgga ttgcgatagt 180
gatcggttta ggtgtgttgt attacgaaat aactaaagaa tttccaaagc caaatatacc 240
tctggataca tgggtgggaa ctggaaaatc acaaaaaatt gatacatcaa tgaggccggt 300
taaaattgcc ataaacgatg aggtccttaa taccttgaaa gtgaaactaa gtgatgtgtc 360
ctttactcca cctcttgagg gcatcgattt ccaatatggt ttcaatacaa ataccctgaa 420
aaaacttgta gacttttggc gaactcaata caattggcgc gaacgtgaag cattattgaa 480
taaattccca cttcaaaaaca aatattcaag gcttggtatt cactatgtcc ataaaccaca 540
gtctccaaaa                                     550

```

<210> 1520

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1520

```

ctggctcttc cgccttatcg tacatcataa ttogaactca aaatcccaat atcgtaaaaa 60
gactagtcct cggcgctgct ttgctatatt tatcatttgc tcacatgcac agacagtatt 120
atgattacgg atcatacacc ttagacatta caggtcccct tatggtaatt actcagaagg 180

```

tgaccagtct tgcgttcagc attcacgacg gcctggcacg cgacgagaaa gatttaacga 240
 aggaccagaa ttatcatgct gttcgcagaa tacctactgc tctagaattc ttcagttaca 300
 ccttccattt ccagggtctt atggctggac cagttgtttt ttatagagat tatattgatt 360
 ttattgatgg aaacatggt ctgaaattta caccgaaatc aacggcaagt ctagataata 420
 actcaaacag cagaaaagtt gtgcttgaac cttctctata atcattgctt caaaaaagtg 480
 atagtcagca caatatgctc ctgtatttat tagttcttcc attgttccaa ttaaagcttg 540
 aaagaagatg 550

<210> 1521

<211> 550

<212> DNA

<213> Ctenocephalides felis

<400> 1521

ggaaaacata aattcctcgg atacaaaacc aactcattgg atgaataaag atggaaaacc 60
 tttgactatt gaagtaggaa ataaagatgg atgggttatt ataaataaac agaattcagg 120
 ttactatcgc gtgaactacg ataaggacaa ctggaaaaag cttgcagatg tcttgaaaag 180
 tctgaattt gaaaaaatcc acgtactcaa cagagcccaa attttagacg attctctaaa 240
 cttggccaaa actggaaaac ttgattatga attggcctta gacattttag attacttgca 300
 ccacgaattg gattacgtgg cttggaaagc agctgaagaa gatctcaatt ttctcgataa 360
 tatgctgagt ggaacaaaag tctaccccaa atttaagaaa tttgtattgc atttagtgaa 420
 caaagtttat aataaaatgg gatttgagca acaagatgct atgggcacat tnggtttcac 480
 tcgcataaat gctctaacat gggcttgnaa atggccttnc agatgcttgc agtctcatgt 540
 cgcttntgct 550

<210> 1522

<211> 172

<212> DNA

<213> Ctenocephalides felis

<400> 1522

caggatttca tgggtcttcat gttttaattg gaacttcttt tcttattatt tgtttactac 60
 cacttagatt atttcatttt aatcctaaac atcatttttg atttgaagca gcagcttgat 120
 attgacattt tgttgatgta gtatgattat ttttatatat ttctatttac tg 172

<210> 1523

<211> 673

<212> DNA

<213> Ctenocephalides felis

<400> 1523

gttaattccc attaacacgc ggcgtttttc gtttagcaat tcaataaatt acacacttca 60
 caatggctga tatggaagat actcatttcg aaactggaga ctctggagct tcagcgacct 120
 atcccatgca atgttctgca cttcgaaaaa atggttttgt aatgttaaaa tcccgccccg 180
 tgtaaaattg tagaaatgct cacttccaaa actggtaaac atgggtcatgc taaagttcac 240

```

atggtcggaa ttgatatttt caacggcaag aaatatgaag atatatgccc atctactcac 300
aacatggatg tcccacatgt aaaacgtgaa gattatcagc tactgacat tgatgacggg 360
tacttaacat tgatggctga caatggagac cttcgagaag atcttaaaat tccagatggc 420
gaattgggac agcaacttcg taatgatttc gaatctggaa aggagctttt gtgcctgact 480
aaaaatcttg ggagaagaat gtgtcattgc gatcaaaacc acacagcctt ntaatatgat 540
tttcacacat tcaaataaaa tctatgagac cattcaactg ttaacagttg caagtggcgt 600
gtatctagtg tgttgctata aatctgcctc agcttggtan attatgcaaa atcagggttag 660
tctttgatat ttg                                     673

```

<210> 1524

<211> 681

<212> DNA

<213> Ctenocephalides felis

<400> 1524

```

gaaactgtta ctcttttggg tgcattaaaa gttaggtatc gtgaaagaat aactatactg 60
cgaggaaatc atgagtcacg tcaaattaca caagtttatg gtttttatga tgaatgttta 120
cgaaaatatg gaaatgcaaa tgtttggaag ttcttcacag acctatttga ttatttacca 180
cttaccgctt tagttgatgg acaaatattc tgtttgcatg gtggtttgag cccttcaatt 240
gatacttttag atcatattag ggcttttagac cgtttgcagg aagttccaca tgaaggctct 300
atgtgtgatc ttttatgggc agatcctgat gaccggggtg gttggggaat ctgccacgt 360
ggtgctggat acacttttgg ccaagatatt tcagaaacat ttaaccattc aaatggcttg 420
acattagtat caagagcaca tcagctagtt atggaaggct ataattggtg tcatgatcga 480
atgttgtgac gatttctcgg ctcttaatta ttgctatcgt gtggcaccag cacattatgg 540
aattagatga tgcattaaaa tttattctca atttgaccac tctaacgggt gaacctatgt 600
ctagaagact cnatactctt gagatatcta tcatgtgtaa ttatcatcca gntagtcttc 660
tttctacacg ncataacnnc t                                     681

```

<210> 1525

<211> 676

<212> DNA

<213> Ctenocephalides felis

<400> 1525

```

gccgntgaag ccgcaccagc tccagctgca gccccgcgcg ccagcgaacg ccaatcatcc 60
aggggatccc gcaaagccgt caagcgcagt ggatctaacg ttttctccat gttctcacia 120
aagcaggtag ctgaattcaa agaagccttc caactaattg accacgacaa agatgggtatt 180
cattggaaag aacgatctcc gtgccacttt cgacgaattg ggccgttttg tacaagagaa 240
agaactcgac gacatgatcg gtgaggcttc aggaccaatc aacttcaccc aattggtgac 300
cttggttcgcc aaccgcatgt ctggatcagg tggtagtgat gatgatgatg ttgtcatcaa 360
cgccttcaag accttcgaca acgacggcaa aatcgacagt gacagggtac gtcagccct 420
catgacctgg ggagataaat tcaactgcaa gaagttgatg acgcctacga ccaaatggca 480
ttgacgataa aggcttcatt gtaccagaa gtcacataa tgtgactgcy tgcgaagaag 540
acaaaaagtg gtgaatataa gaaattgaat acttctacat atacatttaa acactgttac 600
ccattgtggg atatgttaaa atgaactaca tattttgcaa ctataataaa agtatgaaga 660
tgacanacaa atatgn                                     676

```

<210> 1526

<211> 647

<212> DNA

<213> Ctenocephalides felis

<400> 1526

```

gagacatcga aaaagtaagt tttatagaac ggccgcttac actttacaca accaaaatta 60
atctgctgaa gaattttacg aagactaatt agttttaaat ctacagtatg gatgtgttga 120
ataggcccg ctcacgaattt ggaaatgatg aaacagttga aactttatgg gctatgaaag 180
ccatggatca tgttattgtc tattttaata tactttgctc ttagaccca aaatttctca 240
aaatgtgccc ccaagatgaa attatctacc attgttttcg tcaagaattt ccagatatgg 300
atgttaaagt actagatgaa aattcattaa aaggctatac aggaaaatgc cgatggagag 360
aattttgtga acgattcaaa catatagaag attacagttt tggtccttaa tacgcttaga 420
ttgcacattg gattatagtc cagaaaatac tattttagtt ccaagagttc agttttatgc 480
ctagaatctg tcgaaaataa gaaggcttat gctgatcaga aaaaaatatg ctaatgaagt 540
gatgttgcca gnatgaaaat gaaatccata gaaatatagc atggtatggt aagagtcag 600
agaaaagggg gtantttatt tatttataat nttatcaaaa aaaaaaa 647

```

<210> 1527

<211> 540

<212> DNA

<213> Ctenocephalides felis

<400> 1527

```

gaggatgcc aacagaacc gtgtcgcaat ctacgagcac ctctttaagg agggagttat 60
ggtggccaag aaggactacc atgcacaaa acaccagaa ttagagcaa ttccaaactt 120
gcaagttatt aaggctttgc agtcgttgaa atctagagga tatgttactg aacaatttgc 180
atggaggcat ttctactggt atctgacaaa tgaaggattt gaatacttga ggacatactt 240
gcacttgccc ccagagatcg tgccctccac tctcaaactg caaaccaggc ccgaattggc 300
aaggccaaga ccagctgccg gcccaaggac tgaaggatct cgtccagctg aagacagatc 360
tgccctaccg agggcacctg gtgcacctgg tggcgctgac aagaaggctg atgtcggtgc 420
tggcactgga gacttggaat tcgtggtgga tatggacgtg gcagacctgc cctcaataaa 480
tttatataag taatttataa taaattcaat aaaacattta tgataaaaaa aaaaaaaaaa 540

```

<210> 1528

<211> 671

<212> DNA

<213> Ctenocephalides felis

<400> 1528

```

catnaacaga tatcccgatg atccaaagca tcaaatgat ttagcagtaa cactacttat 60
gggaaacaga ccagctgaag ctttacgctg tttgcacaaa gttttacaag tttggagaaa 120
taatggtttt gcattgggtc actatggatt tatttataaa actactatga acgacttgga 180
aagagggtga aaatatgtgc aagaagggtat tgacaccaa gataatggca caatggatgg 240

```

aagattcttg tttcacctcg gtgatggatt gcaaagactg ggcagaaatg atgaagctat 300
gaaggtttat gaaaccggag taaaaataa aatcttccta tctcgatata aacgttcact 360
ctataatatt gatagattag tgtccagacc ctggtggact attgaacaaa ctggttatac 420
taaaactttt aatacattaa cttctaattg gaaagctatt cgagatgaag ctttaaccgt 480
gcttgcatgc aaaagcgcaa gagtaaggaa aaattgcaga atcaaaatct gggcctgtta 540
gagccaggca gaaaattaag agatctgggn atggagcagt tgacttatcg gagnetanga 600
taccggttgt ttaccatac agccgctatt tgcntcagan ctactgcctn ggcaataatc 660
actatgaccg n 671

<210> 1529

<211> 667

<212> DNA

<213> Ctenocephalides felis

<400> 1529

aggnnncacg cctatgctca aaagaacttg cgcagatctg ntcgtcgcat taaggaactt 60
nccttccaag ctgaagaaga ccgcaagaac cacgaacgta tgcaagacct ttagacaaa 120
ttacaacaaa agatcaagac ttacaagagg cagatcgaag aagccgaaga aatcgccgnc 180
ctcaatcttg ccaaattcgc aaggctcaac aagaattgga agaggctgaa gaacgcgctg 240
acttggtgta acaagccgtc agcaaattcc gcgcgaaggg acgtggtgga tccatggcac 300
gaggtggcag ccagtgccc gcaagaacag cagctcgccc acaatttgac ggaatggctt 360
tcccgctagg ttcgacttga accctgacag cgagttctaa attatttata attaatTTTA 420
aaaaagcgaa cgtggctgct tgacagtaaa cattaatatt ttttaaaaat tattaaaagt 480
aaaaaatatc agctcgttca attgtgctta gtatgacatt tgatctaata taacactgtc 540
agnctaacac attatactat ttatcgccca tacatcaacg tcgctgcata aaatatacag 600
ctccattagc tctaatttct tanttttgna atactttttt gcgatttatc aanggaatta 660
ttatgtt 667

<210> 1530

<211> 670

<212> DNA

<213> Ctenocephalides felis

<400> 1530

agcgtgttcg ccgaggagga acgcgcacgt tttgacacat ttcttttagtt tttaagataa 60
aatccaatcc ttoccaacaa aaaattagtt ttaagcgac atttatgttt agtgacacga 120
aggcggttgt tataaaatta gtgtttacgt gatgtctaaa caacagtaca cagttgacgg 180
tgatctattc ggtacgcctc acaggaaaa accagtcctt tggaatgagt tcttgtaaa 240
cagcgaagag ggaacagtct taggaaggac aggactgagt tgggcgaaaa tcggtatatt 300
ctacacaata ttctacggag tattggcagc attagtggca atatgcatgt ggggtgttctt 360
ccagacgtta gatcctcgta taccaaaatg gcaattagac gaaagtatca taggaacgaa 420
tccaggcctt ggcttcaggc ctttgccgcc gatgagaaca tagaaagcac gctcatctgg 480
tacaagggtta ccgatttaga caactacagt cgatggnaaa atcctttaga gttcttcaat 540
ttacaaaact ccggatacct caccgagtaa acattcagt tgctccactc gccgcccac 600
gttgggtngc gngacgcaag ttggtcctgt cganaaacat ttatatacag acngcgggta 660
tttgagtgan 670

<210> 1531

<211> 558

<212> DNA

<213> Ctenocephalides felis

<400> 1531

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aantngtcga ggtcacgaat ctgaaaatga gtngncaccn attcagctga tctctgccac 60
agcttaccag ctcaaaaaac ccaatcaaca aatgttgatc ccaataactg nttggattgg 120
tatggagcaa gcattcattg gtgctgattt cacacaggcc tatgtatcct gngcttttgg 180
gtattaagtc aaattggata ccgtcatgat ctgcttcgga gtagtcaacg caatttgntc 240
agtcgttttt ggttctataa tgaaattcat cggtcgcaa attatcatca ctttcggttt 300
cttcctgcac atgggcctga tgattggatt attattctgg agaccaagcc ctgatgataa 360
aatgatgttc tttgtcatgg ctggactttg gggagttggc gatgcagntt ggcagacaca 420
aatcaatggc ctatacggaa ctctgtcagg cggacnaaag aggcagcttt cttcaactac 480
cgctgtggga aagcttaagg ttgtcatcgt tacgctacag cacacacttg tgcccggcat 540
gaanttacgt caattgac                                     558

```

<210> 1532

<211> 660

<212> DNA

<213> Ctenocephalides felis

<400> 1532

```

gtaaaaacaa aataaaatca ttttagtttg agttagaaca tgtgttatta taagtttagcg 60
taacacacaa aaattaatca taaatgtctg ataataattg gtagtatact tgtacagtaa 120
attcttttatt ttccttttcc caatcttttt ctaaaagcga gtgtggatcat actgctgtgg 180
taattcgtca ccgagaagcg gatgaagttt atcctccatc attagtgaag gctttgcttg 240
tcagaagaga gaggagtgtt ggttgccggt gtttattgta gttttaattt aattttaaac 300
taagttatgc gtatgaccca agacatggac gatgatgaaa agggaaagct tttcgtcgga 360
gggctatcat gggagactac tcaggagaac ctgcagaggt tcttctcgag gtacggcgaa 420
gtgatcgatt gcgtcgcgat aagaacagcg agtcggcagg tcgcgcggct tcggcttcgt 480
cacatttgnc gateccctga acgtcacgtc gtctgcagaa tggccgactc cctggcgaa 540
gacttagatc aaacctgcac cccgccctc agaccaaacg ggcgagctcc caagttcttg 600
cggctgcatc acgngngaac cgctagtgtc tcgcntacga aagttgagtg cntntgcnacg 660

```

<210> 1533

<211> 669

<212> DNA

<213> Ctenocephalides felis

<400> 1533

```

cacatattca agttgattca attcagcaaa gattattaca aaaagttgat ggtgtattag 60
cagtacatga atttcatgtg tggcagttag ctggagatcg tatcattgcc tctgctcaca 120
taaggtgtag aaatttatca gagtacatga aaattgcaga aagagttaag gaattctttc 180

```

```

ataatgaggg aattcattct actacaatac aaccagaatt tgtagaacta agaagtttat 240
tagagccttc acgagatatg gagcaaccat gtgctctaga ttgcccaatt actgatgtac 300
catgtgctca agctacttgt tgtggaactt ccaaaccaga tagagatacc ccatcaccag 360
cggcctcacc ttttatgtgc aggcaacgag gagcaggtca acgagttcaa ggtggttctt 420
caggtccaaa cactggtgat ctagaaagtg gtcattgtta ggtggacatc caaccactca 480
gttggtgcaa ttgcctctgg tctaattgtg ctgtccaaat caaataaaga atcttgtgct 540
gcacacatta tagcgcaaag tccctgccat cagttgtctga tattctatat gcaaatttn 600
ataagaatag atggaattat gcaggaggga nangtcatat gataattatt atcattatgt 660
ggactggat 669

```

<210> 1534

<211> 546

<212> DNA

<213> Ctenocephalides felis

<400> 1534

```

cttgtnttct gaagcaataa tcttggttaa tgctttgggt tgtagcaaag atcctgatat 60
tttaaggagc tacttgaaa aaactgtaga acctgattcg aaaatcagag atcaagataa 120
attccgtgct atgtattctg taatcagaca aggaagtgat ggagtgacaa ttgcattaga 180
atztatgcgt aataaattgc caaaaatgat tgaacaatat acaagcttga atgcgctcaa 240
aaaagtttct gaaactgtag gcgcagcaat ttcaaacgaa aaacaagaag aactgcttcg 300
tgaaattatt gctaaatata attctacatt ttcggattcc ctaatgcaag gtgcaaaaac 360
tgcttttagat gccatggaag ataataaaac ttggagagat aaaaatttag ctactgtgac 420
aaggtggttt gaaaaacagc ctgaagttaa tcctaataat gcaacaaaac tagtccaaag 480
tatttattat tacttgattg tattcaatat tgattatatt taatatatac atcagtntcn 540
gaaaaa 546

```

<210> 1535

<211> 662

<212> DNA

<213> Ctenocephalides felis

<400> 1535

```

aagccgtggt agtttcgctg tatgaggaac ctattcagcc tcaacaagct gcttctgtcg 60
tgagagaaact tggtgactac ctcataactt gcggtacta aatgtgaaac actggagtgg 120
ccccttatta atttttaaga aaactataat aattataatt acgattaatg aataaattta 180
aacaatgaag accggccagc aaaaaggagc agaatttttt tctcatgcct cctgcaatgc 240
agtaaaatat tttgtgcat ttttgtgcct ttgttcccgg tgaccttttt ttctcagaa 300
gggacacctg gagtgtactg gcaaaatcga ggacattagt ttaaacattt gtattataaa 360
accgtgcgga cggcaaaatg aataaaaaat ctactacga ttaaatttgt attaatttcg 420
atgtgaggtt atcgacttgt ggatttaa atactttctc ctttaataaa actcgtgctt 480
ttgcaattta tgatttgcta ttattagcta ttgatgnata aatctgtatg aattttgatc 540
cctcaataaa gaatttatat agtgactagc tctcagtttg aatttattat atcgtattgt 600
gcaaagccga ccatagttgc gactgactcn cgttctnttg tgctgacttg tattgctatn 660
ct 662

```

<210> 1536

<211> 668

<212> DNA

<213> Ctenocephalides felis

<400> 1536

```

gaaatattta cctacattag ctttgccaga tggatcccat aattttacgg aagattctgt 60
atTTTTtcat ttaccaggat tacaaaagga tgaacagact atTTTTggag tatcatgtta 120
tagacaatta ccagtggaga aattagttaa tataccttct gatgtaactc gcagcactgt 180
tcaaaaatca gtttgtgttc taagcacctt acctttatat ggtcacattg agataaaaact 240
tgcattaata gcacatgcat tttttgaaca aggcgacttc agccaaacca agatattgca 300
ggatgcatat ctaaatatga accaatgttt tggtcaaata gaaatTTtag aaaaaataac 360
tataggatta agtgtcagag atttagtggt gaggtggcgt cataaaatat tagttttatt 420
taaattaata ttattggaaa aaaagggtgc atatttggtt caccagtaag gccattatgt 480
ctagccctat taacttatta tctcttcata caatattata gacaaaggat tattgagtcg 540
gcaatcagga cacttntata aaagaaaatt ctagtatatg caatcagata tatcatgcgg 600
aaacagaatt aatatctctg atctaataca aatatgaatg tggaaagttt tgagatatct 660
aaatgctg                                     668

```

<210> 1537

<211> 620

<212> DNA

<213> Ctenocephalides felis

<400> 1537

```

atcaacttgg attttgtcgg ttaattccga aatcgaaaaa gtttttaagt gcaaaacatt 60
taactgtgac atcagtttgt aatgtatctg ggaaggaaat gagatctgta aatccgattg 120
aaaggtttcc tccttatgac tataagaaga aaggatacgg atttatcaat gcgttttttg 180
attacacaac taagagattc aatgataaca caaaggttat tacagtggaa ggtccaccag 240
ctgttggaac aactgcattt gctaaagctt tggccgaaga tttagatatg aaatactttc 300
cagctgttac tatggatcac tactatatta atgaatatgg gtatgatctc agacaacttg 360
atgataaatt acctgaatca tgtaaaagca tcgattttga taaatttcat aaagatccgc 420
ataatagaaa tgtagcaaca atgcaaattg tgttatatat gaaaaaatat gaacaatata 480
ttgcggctct tgccatttat taaatctgga caaggagtta ttttagagag acttgacttc 540
tgtttgtttt ctagaacctg gctagctggg tggtcgcagg actcgtcgat atttgaatag 600
agcacacatc cagatgagca                                     620

```

<210> 1538

<211> 557

<212> DNA

<213> Ctenocephalides felis

<400> 1538

```

gtcattcact ttttacgagt tctttagtgt cctaatttat taataagtat cagaatgggtg 60
ccgaaaacaa aagtatttgt tggaagcttg ccgccaggct ccaagcctga agaattacgt 120

```

```

cgtttggttcg aagcttacgg tgttgtaaca gaatgtgata ttatgaatcg ttgtggcttt 180
gtacatatgc agaccgaaga gatggctttt agcgcgattc aagcgttgaa taatactaca 240
ttaaatgggg ccacgataag tgcgaaagg ggccgcatca aggaacgcgg atcaggtggg 300
ggtcgtggag gcggtggccg cggcgtcga ggatttgag gacgaggagg tggatatgaat 360
cgtagtggtg gaggacctgg gggatatgct aatggtggtg gccccatggg aggtggcatg 420
cgtcgtggag gcggtggccc aggacccatg cgtggtggtg gccgtgacat gaatcgtgga 480
caccctattc tngtgatggg ggcgtggagg agatttggtg gcgagggctg gacccatgcc 540
aatggttgnc gcgcgga 557

```

<210> 1539

<211> 556

<212> DNA

<213> Ctenocephalides felis

<400> 1539

```

gcgtgcctta cctccgagct gttgttactt gttcattttc gccggtttgc gttcgaggaa 60
atthttgtttt cggacgcacg tgagcggtaa cgagtcctgc aaagatgtat ataaaattct 120
gtttattggc attcgtggcg gctgaactaa tgtaaatgtt agttgaggcc aatgttattc 180
ctggtgaaga agaaaagagc gatggattcg agctgctcat tctgcataac aacgacatgc 240
acgctcgggt cgagcaaacg gcggcacgca gcggccctg cgtagacgga gaacgatgtt 300
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gcggccctcc tgtgctgtac ttgaacgctg gcgatcatat caaggaaact cttggtacac 420
gctttacaag tggaacatat cttatatgat gtaaacgaac tcgctccaga tgccatgtcg 480
tggaataac gagttcgaca cgggtgtcca ggttgctcca tttctgaaa atgtgaaatt 540
tcagtgtagc tctacc 556

```

<210> 1540

<211> 620

<212> DNA

<213> Ctenocephalides felis

<400> 1540

```

cctacttaca aattaacgta cttcgacctc aaaggaatag gagagccttt gagacttcta 60
ctaagctatg ggaacataaa attcgaagat gtccgagtgt catttgaaga atggcctgca 120
cttaaaccac agatgccatt tgggtgaatg ccggtattgg aggtcgacgg aaaggaactg 180
caccagagtt tggcactttc gcgtattttg ggaaaacaat tcgggctcgg gggcaaaaat 240
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ttgacgatgg cctattggga acaagatgct gctgtaaagg agaaaaaat gaaagaagta 360
cacgatacac tcatcccatt ttatacagaa aaacttgata aaatagcgaa ggctaataat 420
ggcatttagc tcttggaaga ctaacttggg ccgctttgtt tcgaggagtt atcgaatata 480
tgagtttcat atctggaaca gatttccttg gaaattgcag gattcaagag tgctttaata 540
tgtgcaattg ccgacgtgaa ggaatggctg caagaggcaa aactgttgta tgtcatttgg 600
gaatttaaat aacattatac 620

```

<210> 1541

<211> 620

<212> DNA

<213> Ctenocephalides felis

<400> 1541

```

atttgaatcc tcttatcgat tactaatctt ttgtacagtt taatatttat tatcaaggcc 60
ttgtacgcca gtgtgtgtaa aggtctcttc agtcgacgac agaggataga agtcagagga 120
catttataat acgcagtttt taagtttttt ctggtgaatt tgaatatatt tgaagaaaat 180
gaagaggttt ttggttgctt tggcggtttt ggtggtcggt gctgaggcta agctgtcatg 240
ttcgagtaca aaagcctcga tccccgaaga atggatcgac atgacagccc agtcacagag 300
gagcatgagg aaccagatcc aagaagaact gagcgcttcg atgcaatact tggccatggg 360
ggcgcatttc tcaagagaca ctgtcaacag gccaggattt gctgagatgt tcttcaaadc 420
ggcaagcgaa gagagggaac atgcatgaa actcatgtct tacttgatga tgagaggaga 480
actgccgaga ggctgcagga cttgacagaa caccactgtc caatcacact tggctgtggt 540
tgagtgtctt gaagatctct gaatggagct tcgtccagaa ataacatgtg acaaagcttg 600
cagacatatg gactatgata                                     620

```

<210> 1542

<211> 591

<212> DNA

<213> Ctenocephalides felis

<400> 1542

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aagaagatca agaagaagaa ggcaaaagaa gagtctggag atgccccagc cgctgaagcc 60
gcaccagctc cagctgcagc ccccgccgcc agcgaacgcc aatcatccag gggatcccgc 120
aaagccgtca agcgagcgg atctaacggt ttctccatgt tctcacaaaa gcaggtagct 180
gaattcaaag aagccttcca gctaattgac cagacaaaag atggtatcat tggaaagaac 240
gatcttcgtg ccactttcga cgaattgggc cgtttggtac aagagaaaga actcgacgac 300
atgatcggtg aggcctcagg accaatcaac ttcacccaat tgttgacctt gttcgccaac 360
cgcatgtctg gatcagggtg tactgatgat gatgatgttg tcatcaacgc cttcaagacc 420
ttcgacaacg acggcaaaat cgacagtgc aggttacgtc atgccctcat gactggggag 480
ataaattcac tgccaagaag tgtgacgctc gaccaatggt catgccataa gcttcattgt 540
cccagaacta tccaatgtgc tgcgtgcgag aaacaanagn gngatataga a 591

```

<210> 1543

<211> 554

<212> DNA

<213> Ctenocephalides felis

<400> 1543

```

gcaactttgg gtctcatggt tttccaacag ttgtctggaa tcaatgctgt gatcttctac 60
agcgtgtcca tatttaaatt agcaggaagt gacctggacc ctgcggtgtc ttcatcatc 120
atcgacgagc tgcaagtggg gatgagtcta gctgctattg gattggtaga gaaatttggg 180
cggaaaactt tgctaattgat cagttccacg gttatgggaa tctgtttggc agctttgggg 240
tattacttca ggggtgaaac atcaggcgaa gacgtcacct ctctgggctg gcttctctg 300
tctagcctgg ttttgttcat cgtggctttt tgcatagcct atgggccccat tccctggatg 360

```

```

gtcatgggtg agatttttctc tgcgacgtta aaggagctgc ttgcagccta acagtcacgc 420
cagctgggtcc ctcgtctttc tggcactaa agtattcccc acatgaggga gacttttagga 480
ggagatgtac cttttggatc ttcactttca tgatategta cactgtttcg tgtcttctgg 540
tgccgaacaa agat                                     554

```

<210> 1544

<211> 604

<212> DNA

<213> *Ctenocephalides felis*

<400> 1544

```

aagattacct agacttggaa caagaattcg acctaataaa tctaaacagc aaggtataaa 60
ggaatctacg gaagtgcatt ctcaagttga tgctgataaa gtaggcgaac aaccagcaga 120
gaatgtgggt gagcaaagtg ccgaaacaaa agctattgcc gaagaagatg atgttaagga 180
tgcatgggga tgctgattca agcagtgaag aggaaagcac aactgaaaca ccagcagtaa 240
ctgcaaagtc tgaaacaaaa gtggatcaat ctgcagaaaag taaaaggaa gaaacttctt 300
cagaagaaga gtctgaagaa gaaagtgatt ctgagtcaga atctgaaagt agcgaagaca 360
gtgataatag aactgatgca gaaaagaaac gagaaaaggc tctccagaga atacaaaaaac 420
gcagaattga tgcagaacag aataaatcat tagacaaact gagagctgcg gtggttgtgt 480
gttgggacat gtagatctgg aaaacaaaaa ttttgcaata ctcnacaaat gtcaagatgg 540
tgaantgtgg tttctcacca aatgtgctca aatgtcatag aaacataagg acagtaaatt 600
gtaa                                     604

```

<210> 1545

<211> 608

<212> DNA

<213> *Ctenocephalides felis*

<400> 1545

```

gcctnttttc gatcaattcg tattagactt tttgataaaa aatgctgtct aaagcttcgc 60
ttttggccaa ggtatcccg ccactgactg tggcagtgcg aacaacatcc caggctgcaa 120
catgccctgc tcctacaaag gtagaagaag ccgatagtgc tgaaagagat ttggtcaact 180
tcccaaggcc aacacgtttg gaacattcac cttaaagttcg ctttggattc attccagact 240
catggtttga atttttctat gagaagaccg gtgttactgg accttacatg tttggaactg 300
gtttaattac ttacttatgt tcaaaggaaa tttacgttat ggagcatgaa ttctatactg 360
gtatttcatt gggattatc tgtctctatg ccactaaaaa gttgggtcca catattgcaa 420
aatacttggc caaagaagtt gatgcctatg ccgatgaatg gaattcaggt cgtgtagaag 480
aagttaaaag ttaccaagat gccattgaag gagaaaagtt ggacaatgga gactgaaggc 540
aacttatgtt gatggatgca aacgtgaaat gtgcttgac ttgaacacta caggaccgcc 600
tgaagta                                     608

```

<210> 1546

<211> 595

<212> DNA

<213> *Ctenocephalides felis*

<400> 1546

```

agacntacga gcaccaagtg gacaagacac acagtggaca aacagtgaaa ttgttgattt 60
gattgtatca gtgatagcca gtgatataac aatattgtgt taaaaaatga tgacgccgac 120
cgaaattagc aatttgaaaa aagtgaagtt ggagaatttt tgggacgagg tcgatcccaa 180
aacatatcg cctgagtatc caaaaaatga aatccaggat tttttcagcg gcggaagcgt 240
cttcataacc ggcggtaccg gatttttggg aaaattattg atagaaaaaa tactgaggac 300
atgtcccgat ttgtcaagaa tctacatctt ggtccgagac aaaaaaggga aagatgcaaa 360
aaatagatta aaagatatgt taaatgatgt ggtattccag cgattaaaga aagagagtcc 420
gtggcccaac aaaaattgga ggttgttatg gagatgttg caagcccgat ttagggttgc 480
ggaagtgata gaaaaatata caggatatgc aacagttata ttcacgtaca ncctgcaatt 540
tcacgaccat aaaaactcag ttgcataatg taagggcant agagtgttga actgc 595

```

<210> 1547

<211> 595

<212> DNA

<213> *Ctenocephalides felis*

<400> 1547

```

atcntatcgg tgtgtttata tccagaagct ccgncaactt gttacaattg aaacaagtat 60
ggatcatgtc ggtgttccaa ttcataacg ttttgggtct tctattccaa gttttgtatg 120
ggtacattcc taatatctgg attgtttttg ccatcgtttt atgggaagga cttctaggag 180
gtggtgctta tgtcaacacc ttctacagga tgagccatga gattccaatg gaaaaacaga 240
agttctctat gtcaattact gctattgctg atagtctggg aatagccttg gctggatgga 300
tagctatgcc aacacataat gccttgtgtg ctttgcctaa accaacttaa gtgaataaaa 360
tttgaccaa tccaacttta ggtggatgaa attaaagttt agttgtttgc gagtgcagat 420
gtagataatt gaaccagtga aatagttttt aacgtaaaat ttctatcaga aaattatcat 480
tttaaggaa attgtggata ataaaacctt agcttaaatt aaatacccac ttataaacta 540
atatcgagta ttctctatta aatcaatcga accgtcatgt gaatcgaata ttgga 595

```

<210> 1548

<211> 653

<212> DNA

<213> *Ctenocephalides felis*

<400> 1548

```

gaanncaata gaagacctct agtaatgggg tcagttggac cttatggagc acatctgcac 60
gacgggtcag aatacagtgg ctcttatgca aaaacgatca cgaaagagga aatccaagaa 120
tggcatagac caagaataga agctttaata aacgcaggtg tagacggatt agcaattgaa 180
actattccat gtcagttgga agctgaagcc ctagttgaac taatagttaa tgagtatccc 240
ggcacaaaag catggccttag ttttcaatgt caggatgaat ctctctcgc ccacggcgag 300
ttattccgag acgcggcctt gagctgctgg gagctggcaa gggagtccca atgtttactc 360
gctgttgggg tcaattgcgt tcatcccaaa tacgccgtcg gtctctgcaa atccctcaat 420
agggatcaga tgcccaaat accgtcgtgt tatccacag tggcgaaaat tacaccgccc 480
gaagggtgga aagataagac cgtgtgttct gtccaagata cgtcagttct ggttgatca 540
ggaccctttt anggaggatg tgctgtctgt caggcataga atntagaaat tggatcgtgg 600

```

atataacgga ttaataattt aataaataat tnttacgaat ttntataatg tgg 653

<210> 1549

<211> 553

<212> DNA

<213> Ctenocephalides felis

<400> 1549

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tagacttatt tgaagacact ccagctaaca aagtgaatat tgcaaatctc gctgcaggaa 120
aaaaagttgt cttattcgct gttcctggcg ctttcaactcc aggatgttct aagactcatg 180
tacctggcta tggtgcaaag gctgaagaat taaaaaagag tggaattgct gaaattcttt 240
gcgtctctgt taatgatcct tttgttatga gtgcttgggg taaggatcag cagagcaatg 300
gaaaggtaag aatgcttgca gatccaagtg gtacattcac aaaagaactt ggattgggag 360
ttgaattgag cccttaggag gtttacgttc taagagatct ctatggtgat agacaatggg 420
gtcgtatcag aattgaatgt agaaccagat ggtctggact ttctgttcc ttagctgaca 480
aacttaaagt ttagaatata gtaattattg aaataagagt aataaatata atgtaatat 540
aaaaaaaaa aaa 553
```

<210> 1550

<211> 661

<212> DNA

<213> Ctenocephalides felis

<400> 1550

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gaacntcgtg ctgatagcgc gcgcgttccg tcaccaattc ataattccgg acttccaagg 60
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gggcagaccg tcgcgcgttg tgaacccgga cgacgatccc gccggcgaaa atgttgctag 180
ctacattcca cagcttggtc cgcatgaacc ctgatttttg ggggtgtgagc gtctgcacca 240
ttgacggaca aagggtgtcg attggagatt gcaatgtgcc atttacttta caatcttgca 300
gtaaaccgtt gacatatgcc atagcattgg aaaagctagg ccaggcgacg gttcatcaat 360
atgtcggta agaaccaagt ggtagaaact ttaatgaact cgtactagat tataataaaa 420
gaccgcataa tcctatgata aacgctggag cgatattggt tgcgtattg aaaacttagt 480
caaacctgag atgactctac tgagaagttc gactatatga ccacatattt aagagattgg 540
tggtggaaga gtctcggctc aacaaccggt gtcttgcgga cccgaagccg cgatagaata 600
cctttggttt actgaggaac cagtctnccg gtaactaat acggatctgc ttatttatgt 660
g 661
```

<210> 1551

<211> 671

<212> DNA

<213> Ctenocephalides felis

<400> 1551

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gcattattag ctaacgatct tcataatata tttgtcaaca gtaatctaac gcatttgaga 60
```



```

aaacttcact tggacaacaaa tgaaatatta aattttggag acaaaagagt tttctgcgat 120
ttacctagtc tgcgagattt gcatttgggt gataattatt tatcagagat agactttaac 180
tttttgtgtc ttaagaattt acggtttctt gatttggaaac ggaataaaaat cgaatacttc 240
aagaagcgtg acctgctcac cctggaccag gtgaatgctg ctggccgaga agagcagttg 300
gtcatcgatg ttggcggcaa ccctttccga tgtgattgca ttgttagcga gttttattca 360
tggctgttcc gaactaatgt taccgtcagg aacaaggagt ctttacggtg tcatcgcgcc 420
caaaagcatg gcggggaagc attgatcagc ctatccgtcg ataaatgtcg aaaagctcaa 480
tctgtagtgc acgatcgagt aaaatatcta ccgtagacttt atgctgatta ttttaatagt 540
catttttctg gactgtcgcg tctggctaca tgagcagaga taagttgaaa tagcattact 600
ctgtgataga accgtttaaa aagtcaattn ccgatccgaa catgacagaa gttatatagg 660
aattgtgcaa t

```

<210> 1552

<211> 611

<212> DNA

<213> Ctenocephalides felis

<400> 1552

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cacntttacc atcgtcgaaa gttgaagtca ccgtnacagaa gttaaaggat gatcagaaac 60
tgaagagtca gcaggagagt gcggagaatg tttccacggt tacggctctc aaacctgcag 120
atagtgccga gataacagtt gtgaagaaaa cgctgaaaca gaaaataata catgaacttc 180
tacattacta ccatggtttt cgacttcttt tcatcgattt aaatgtatcc agaaaattaa 240
tatggcgagt tctgaatgga aaccagttga ccaggaggga acatagattg ctagtgagaa 300
ccactgctga tcttttcaga cttctgccat tttctgtgtt cattattgtg ccttttatgg 360
aattactgct gcagttgcc aataactatt cccaggaatg ttgcatcgac cttcaaactg 420
cccagagaga gaggataaat tgaacaaaag ttgaaggta aaactagaga tggctaaatt 480
tctgacggaa acattagacg acatgactct acacacaaag atcacagatc agaattggct 540
aaagagttca attgggttac gaaatgagac agctgcctca gcnntacgaa gaatcatgaa 600
attcaaaatg t

```

<210> 1553

<211> 566

<212> DNA

<213> Ctenocephalides felis

<400> 1553

```

ctgntngaca agaattgatt gacagattta atgangatga agaaatTTTT atatttttat 60
tatctacaag agcagggtgg ctaggaatta atttaactgc agctgatact gtgattatac 120
atgatattga ctttaatcca tacaatgata aacaagccga agacagatgc cacagaatgg 180
gccaaaagcg gccagtaact atttatagat taattagtaa aggaactatt gaagagggta 240
tgcttcaagt tgctagagaa aaacttaatt tggagagaga agtcaccact aacacggaga 300
atgatcctca agaagtaaaa aatgttgtgc gattactcac actagcgtg ggcgtcgatt 360
caaataaagc tgccaatctt ttaactccat cgcgagaaaa tcggaatcct aattgcaaaa 420
gccgctatta tttagcacac attatgaatt ttgatctttt aaatttatta gtttaattgat 480
gattatttaa aaatataggt atttttatat aatttatgaa ttactgcagc gccaaataaa 540
tccgtttact ctaaaaaaaaa aaaaaa

```

<210> 1554

<211> 585

<212> DNA

<213> Ctenocephalides felis

<400> 1554

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acttnnctcc atgcaagcct ctcttgaagc cgaagccaag ggcaaggctg aggctttacg 60
catgaagaag aagttggaag ccgacatcaa cgagcttgaa attgctctgg accatgctaa 120
caaggctaac gccgaggccc agaagaacat caagcgttac caacaacaac ttaaggatgt 180
acaaaccgcc ttgaggaaga acaacgtgca cgtgatgatg cccgtgaaca acttggcatt 240
tctgaacgcc gtgccaatgc tctccaaaac gaattggaag aatcccgtac cttattggag 300
caagccgaca gaggccgccg ccaagccgaa caagaattgg gagatgctca cgagcaattg 360
aacgaacttt ccgcacaaaa cgcttcagta tctgctgcaa gaggaaattg gaatccgaat 420
tgcaaacctt gcattctgac ttggacgaac tctcaatgaa gccaagactc agaagaaaaa 480
gcaagaaggc atggttgacg cagctagggt ggtgtgaact ccgcctgaca agacntgccc 540
aaaccaaga gaactcagaa aggtcttgaa cacaataag aattg                    585

```

<210> 1555

<211> 612

<212> DNA

<213> Ctenocephalides felis

<400> 1555

```

agacngctgt ttttgtgttc aaaaagcagt aaantataga aaaaaaaaaac ttattactag 60
tgcacattaa caaaaataag cagaacaact attaaaaata tgttttccat gtcaaacttt 120
ttctaaaaac cattcaatgc atagaaatgt aattttttaa atcaatagta tgatttttta 180
aaatatattg ttttatacca ggagtggact actgaatttc tgcagtgttg ctatggctct 240
caatgatcta gggtagaaa ctgttggtat acgaatagac tctggtgatt tagcatatct 300
ctcagttctg gccagagaaa catttgagag gatagcagag aaatacaaca ttccttggtt 360
tgcaagactc atgataattg catcaaata tatcaatgaa gacacaatac tcagtctcaa 420
tgaacagga caaaaatag attgttttgg aattgggacg catttagtta catgtcaaag 480
gcaccagcac ttgttggtgc tacaaaatgg tagaaataaa tggacacctc gaataaactc 540
agccagatgt gctaagtaca tgccagtcgn agatgcctat cgttatatgg nagatggcat 600
gccctatgct gc                    612

```

<210> 1556

<211> 613

<212> DNA

<213> Ctenocephalides felis

<400> 1556

```

gtggttcaaa gataatccaa gatgggtaag ggaaataata tgatccctaa tgggcacttc 60
cacaaagatt ggcaacgttt tgtgaaaact tggtttaacc agcccgaag gaaaattcga 120
agacgtcaaa acaggattaa aaaagctcgt gccttggtcc ctcgtcctgc tgctgggccc 180

```

```

ctcagaccaa ttgtgcattg cccacagtg cgataccaca ctaagggttcg agctggcaga 240
ggttttaccc tcgaagaaat caggggagca ggtttgaatg caggatttgc tcgctcgatt 300
ggcattgcat tagatgttag acgtcgtaat aaatctgtag aatctttaca acagaatata 360
caaagattaa aggaatacag atctaaattg atcttggtcc caagaggtgg aaagaaattg 420
cataaggggtg aagcaactga agaggaatgc aaggttgcct ctcaattaga aggcgtcgtg 480
atgccaatta aacaaacttc agttaaatct aaagtcgtgt cattctgaag atgaaaagaa 540
attctagctt tcccacttaa gaaaggtcgt ctgtcagcgc tgggtggttc gtgaaaagga 600
gtaaagatca ntg 613

```

<210> 1557

<211> 659

<212> DNA

<213> Ctenocephalides felis

<400> 1557

```

aatnntattc tgaatactat gttcgatttt agcgttttcc cggcgagctt gatataatat 60
taattgtttg gagtaaaaac aacaaatttt cgaggattaa tttatacaaa aaataattaa 120
aatgaaatta gttaggtttc ttatgaaatt atcacacgaa acagtgtcga tagaattgaa 180
aaatggaact caagtaaatg gaacaataac tggcgtggat gttgccatga atacgcattt 240
gaaagctgtc aaaatgacta ttaaagatcg agatccagta tttcttgata ctataagttt 300
gagaggggaat aatattaggt actatattct cccagatagt ttaccattgg agaccctttt 360
gatagatgat acacccaaag ccaaagctag aaagaaggaa gcagctcgag gtggaatacg 420
aggaaggggt cgtggtcgtg gtggcccaga ggcggtcgtg gaggtggtag gggacgtgga 480
cgaagataat aatatttttg attgtaagct attataatca ttgaacattg gtcataagga 540
aggctatcaa tttgatgtat aatgtatttg atcaacaaga atttangttg atccattttt 600
aaccaatttt nttgtggcta atcagtttga gtcgatcata ttctgatgtt atatgaaga 659

```

<210> 1558

<211> 564

<212> DNA

<213> Ctenocephalides felis

<400> 1558

```

gtactttgct ttcatttttt tcattatttt caagagcaat ggctgaagca cgcgaaagaa 60
ctttcattat ggtgaaaccc gatggcgtcc aaaggggttt ggtaggaaaa atcatcaaac 120
gattcgaaag ctaaagggat tcaaacttgt agcaatgaaa ttcattgtgc catcagagga 180
gctcttgaag aaacactatg ccgatntttc ttgccagacc ttnttttctt ggactagtta 240
aatacatgag ctctggccct gttgtcccca tggctctgga aggcactaat gttgnaaaaa 300
ctgggtccgtg ttatgttagg agctacaaat ccagctgact cgaccccagg aaccatccga 360
ggagatctct gtgtggaagt tgccgcaata ttctccatgg atcagatggt gtagaaagtg 420
ccaagaagga aattgcttat ggtcactgaa aaggaagtaa tctctgaccc cagctcatga 480
atcatggttt atgaataatg gtgataatnt ngattttggn taanctgatt aaaaaanta 540
tgtgaataaa aaaaanaaaa aaaa 564

```

<210> 1559

<211> 617

<212> DNA

<213> Ctenocephalides felis

<400> 1559

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gtggnntttca taggatgctc ttgggggttc cccagtgggt ccaccaatgt aaataatcga 60
atcggttgag gcaaagacac cacaattcaa gaacatcctt accaagtatc aattttgtac 120
aatgatgaat atcacagctg tggaggttct ttgatttctg aaaaatgggt ttgacagcc 180
gggcattgca tcgattcttt caaattctac atccgtgtgg gaagttctct tgaaggcgaa 240
ggtggagctg tgcacgagc tctaaaacaa tatcgacatg aaaagtttga tgcaaaaact 300
gtagattatg attatggatt aattgagtta gacacaccgg tacaacttag tgaaaatgta 360
aaattagtca aattggctga acctggtgtt gaacttgaag aaggaactct actaaatgtc 420
acgggatggg gtagccgcga tccagcgcac tctcaaatag taactgacca tatgtatccc 480
aagaagttgc aaaaatacat tcagacaggt gatctcccat atatgttctg tntggtaaact 540
gcangannga agactgcatg gnacttggtg gcngtgatca atggatccat tggatggttc 600
tgagcttggt gcctacc 617

```

<210> 1560

<211> 659

<212> DNA

<213> Ctenocephalides felis

<400> 1560

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cttanatgtg tggaatttgt gactgtgatc ctgcacactt tggaagacat tgcgaatgtt 60
ctgctacaga tgtaacatca cacttagatt tggcgatggg atgtagaagg gataatacca 120
ccacagttga ttgctcagga aaaggaactt gtgtatgtgg tgtttgtaa tgcgaacagc 180
gtgccaatat cgaagaacaa atctccggca aatattgcga atgcgataac ttctcctgcg 240
accgtcataa tggatattta tgctctggtc cagaacatgg tgtttggtc tgcggtcagt 300
gcgactgtct gcccggtgg accggccctg cttgcgattg tagagatacc aatgctacat 360
gtatcgctcc aggatccaca ggcaagaaa tgtgctctgg acacggagtt tgtgaatgcg 420
gagtttgcaa gtgtgatgtt gctgaggatg gcagatatc aggaagatct gcgagaagtg 480
tcctacttgt cagccgtgca ggagttcaaa gaatgtgtta tgtgtcaaat gtataaaaact 540
ggccctcaca gaagagaatg cggaattga catctccatc gtcaagatna gtgaactgtg 600
aagtaagata cattatgtct ctccacgaaa catgccattn atctttntca caaaagcaa 659

```

<210> 1561

<211> 662

<212> DNA

<213> Ctenocephalides felis

<400> 1561

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cggaancttt aaaaatgag tgctcctaca gtaacaattg cccagggcac tttatcagga 60
aaggttctgg ttaatgaaaa tggaaaagag taccatggtt tttgtggaat tccatagtct 120
gctgctccag ttggcaaatt acgtttcagg cctccacaaa aaccagaatc atggagtggg 180
gttcgtcaag ccaactgaaca aggcagtga tgttcacga aacatagtct tttgcaacac 240
cctataggaa ccgaagattg tctctttgca aatgtctata ttcccaaac tgatgcaaaa 300

```

```

aagcctcttc ctgtcatgtt ttgggttcat ggaggaggtt ttgtcatggg atcaggaaat 360
actgacatgt atggtcctga ttatctcatg gactacgatg ttatcctggc accttcaact 420
atcgtctcgg agttctggga tttttgaatt tagatttgga agaattgtctg gaaatgtcgg 480
actaatggat caggttgctg ctctcaaagt gcaaaacaaa acattgcaag tttggtggtg 540
atcaaacaca ttctattttg gagaatctgt gtggtgcagc tacattatta gttgctgac 600
tacagaggtt gtccaaaagc atgncaagtg aggcttaa at catgcttcac gncactaag 660
an

```

<210> 1562

<211> 655

<212> DNA

<213> *Ctenocephalides felis*

<400> 1562

```

gaatntgcta ctttacaagc cgctattgaa gcaatcagtt caatgaacat gtttgaccta 60
ggaggccaat ttttaagagt gggacgtgct ataacgccgc cgaacgctct tatgggaccg 120
acaactggat ctatgatgcc gactgctgct gctgttgccg cagctgccgc cacagctaaa 180
attcaagcga tggatgcagt tgctagtaat gctgtcgctt tggggctgcc gagtttgagt 240
tcttcaccta caattccgtt atcagtgccg acgatagcgg tgccgcccat cgcaacgata 300
acgccatcag ctcccgttgc tatatccggt gctgttaagt taccagggtg cgtcataaccg 360
cgcaggtgtc gtcgtacctc aagtcataca gcctccagga attgtgacgc cgacatcgca 420
accagttata attccagtat cagtattacc taattgtgaa tcttctccga cgatgatata 480
aacaagctca cctgcacaca gccgatcaca atactacaca gaacaatgaa gccagaatgg 540
ccaagaacnc acaagagact tnaaaaaact atagatgaac tgacccaact tacagacaag 600
aacatgtgct aaggnaaagn nncgcctatn tcaagntatg aagangatca ctnta 655

```

<210> 1563

<211> 651

<212> DNA

<213> *Ctenocephalides felis*

<400> 1563

```

ctnttcagat aattcttttt caccaaaaaa taatatctgt aatttacctc gttaataatg 60
gctgcttcag caattccctt tattattttc accgtccttt ggggtatagt ggggtgctgt 120
ttacctttta tagtgccaaa aggaccaaac agggggattg tgcaagtcgt tttgatattg 180
acagcagctt gttgctggct cttctggctc tgctgtaca tggcccaa at gaaccccta 240
ataggacca aactacacca gaacacgatt ttattgatgg caagagaatg gggaaatcca 300
atcagcgatt tgtaatttag tcaaccaaca ttctgaata tcttctgata taaaatttca 360
tactgtgtga tgatgataaa tgaagataat atgatttaca tttcacataa atgtgtacat 420
ataattttta gaacaagtta ttaatttgcg tgattgtata tagatatttt atgagaacta 480
ttcgtttag caaatatatg tgctctggga gaaaaatnnn nnnnnnnnnn nntnnttnt 540
ntnnntnnnn tggggggggc cgcccccac ccntaagggg gggttaaata ncggcgggtt 600
tnnccgggga tgggaaacct ggttnccaat antgcttgan antccnttn c 651

```

<210> 1564

<211> 664

<212> DNA

<213> Ctenocephalides felis

<400> 1564

```

cgaataggtc cgttttaaat tttataaatt aaaaaatata tcaaaatgaa aagttttgtt 60
ccctgtgata caggatgtga ttttccatt caaaatttac catacggcgt attttcgaca 120
ccggcaaatc ctgtgcacag aattggagtt gccattggag ctctcgtatt agatttgagt 180
ggagtattgc attttttcaa accagaatat cagaatgcgc ttagtgccac aactctcaac 240
ccattgatgg gcctagaaaa atctgattgg aaacaaatta gggagaccat acaaaaattg 300
ctgttggaag gttcggaact tcacagaaat gaagaactcc aacaaaaagt attgcttcca 360
caagcgtcat gcatcatgca cttaccagct actattggag actataccga tttctattct 420
agcatacatc atgccaccaa tgttggaaca atgtttaggg gaaaagataa tgctttaatg 480
cccaactgga aatatttncg gtggatatca cggtcgcgca agctcagttg tgctctggac 540
tgtatccgaa gaccatggga caactttaca gtgtggactg acccatttgg ccttnagnct 600
atgatttgac tgaagngant tttgagtgcg agcacaaatg gtcaagagcn gtgcaatcta 664
nann

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<210> 1565

<211> 664

<212> DNA

<213> Ctenocephalides felis

<400> 1565

```

gtanttttta cggccaacttc agcttcaccc attaaaaatg aagatttggt ttggatggaa 60
agcggaaagt tcgaaggtga catggtctta aatcaggaac aaatgttatc agtttttagga 120
cttgggtcta aaaatggcct tatcgacaaa aaatatcgct ggcccaaaaa cgaagtgcct 180
tacgttattg taggaggata cttcaatcga agtcaaatta attacattca taaggctgtt 240
gcagaattta gaaacatttc ttgcgttaaa gttagacca aaacagttac ggacacaaaa 300
tatgttcaaa tcacgggtct tccaggcggg tgttattcta gtgtcggatt ccaagatgga 360
gtccagaccc ttaatttagc accatacgaa attgagaaag ggtgcttcg taaagcgact 420
attcagcacg aatttctgca cgctttaggg tctatcacca gcaatcgact cacgacaggg 480
acgaatacgt gaccatcatg tgggacaata ttttgcaaac actgaccact taacaaatat 540
acggtagtcc gtcaggattc gaaccggtat gctattggcg tatgcntacg ggcttcggtc 600
tcgaaacgng aagacttcgc acaagancac gtgnagatnc atggcaaggt gagatatgan 660
tcat

```

<210> 1566

<211> 662

<212> DNA

<213> Ctenocephalides felis

<400> 1566

```

atttttgcca aacacgatca atctcaagct attntcaaca gacacaagga tgtttttagcc 60
agatggcagc gtctcctggg agactcccgt gctcgcaaga cccgtttgct ggacatgcaa 120
gaacagttca gacagatcga ggaattatat ttgacattcg caaagaaggc atcagcttcc 180

```

```

aattcctggt tcgagaatgc cgaagaagat ctcacagatc ctgtcaggtg caactcgatt 240
gaggaaatcc gtgccctgag ggaggctcat gcacagttcc aggcttcttt gtcgtctgca 300
caggctgatt ttgaagccct ggcagccctt gatcgccaaa tcaagacgtt caatgttggc 360
cgaatcctta cacctgggtc accatggagg ctctcgaaga cacctggagg aacttgca 420
agataattgc tgaacgtgat actgaacttg cttaaagaagc tcaacgacaa gacgaaaatg 480
ataaattgag gaaagagttt gcaggacca tgctttcata atggtgccga gactagaact 540
caatgatgga aggtccggtt tntcgacaga attggagncc ttcnagaagg taaaaagttc 600
ngccaaagag tgttgagcga atgaaaatgg tntnctggag acttnttgn aattcnact 660
tc

```

<210> 1567

<211> 648

<212> DNA

<213> Ctenocephalides felis

<400> 1567

```

atTTTTTtca tagttatgca tcctttatca ttaggattaa tactaattat ccaaacaatt 60
tgaacaagaa tatttattgg ttaatttca aaaacattct gatntcata tattttattt 120
atTtcatTTa ttggaggaat attaattcta tttatttata taacaagaat tccaaatact 180
gaatattttt ctttaaatat tnataaaact atttttatta ttttattatt aacattaaga 240
attattattt attataataa aaattttcta ttaattttta acaataattc catatttaat 300
gatttttaatt caaacttact tatatataat ttaattctaa ataaattata taattttcca 360
aataatttat taactattat attaattatt tatttattaa tttcattaat ttgngaggta 420
aaattcagat attttttatg gcctttacga aaaaatttta aaaaaaaaaa aaaaaaaaaa 480
tcnggggggg gccgggcccc atcgccctaa gggtcgggtc aatcctgggc gggttacacg 540
cggctgggaa cccgggttnc cacttatcgg ctgggncatc ccttngcagt gggatatagc 600
aaggcccccg cnccttcaaa gtgccgctga tggaagnaat ggagcgtn

```

<210> 1568

<211> 661

<212> DNA

<213> Ctenocephalides felis

<400> 1568

```

caggnttcca caacttgta ttaatatctc ggtctcttca ctgagacggt aaaagaattt 60
caaaatgggt tacttttatt gtatatcact tttatgcctg ttcactatag ttagctgtaa 120
taccggatta gatcctaaag gtccaaaagt tactcatgag gtatactttg acatcagcat 180
tggtggtgaa cctgcaggcc cgtgttttga tcggcctttt cgggggcact gtacccaaaa 240
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ttatggtgct ggatggttgc catggcaaag gctggcaaag acctatggat ctnaattttt 480
atcctacaaa ccctgctggt agatgacgtc cgttgattcg gaaagtatca aggaatggat 540
gtgngaggaa atgatcacat cacagattca aaacaacccc actgtgtgaa tttagacttg 600
ngtnactggt ntaacctcgg gggtaagaat cactaataaa gattntcttt gtatttttat 660
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<210> 1569

<211> 941

<212> DNA

<213> Ctenocephalides felis

<400> 1569

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tgtaggagc ttaaaccgag gtggagttgc agaattgtca actggacagt acggtgatgg 180
tgctggcaaa ggaggtggtg gtggtggatc catccgtgaa gcaggtggat ctttcggcag 240
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atatatagca ttatgaaaat gttagacagt gatnaaaatt caaatatttg ntctattact 480
gaattaataa acttgcatta agcttctata agttattagt tttctagcat cttaataatac 540
tcattgncac tacatatagt tttaaattca ttggngctat gcatgtattg gactaaatat 600
tggaataaat ccataacaat ttttttngna aaaaaaaaaa aaaaaaactc ggnggggggg 660
gcccggaccc caattcnccc tntaggggng tcnattacna atcactgggc cgcggtttta 720
caacgtnnng gactgggnaa accctggggg tancccaact tantcccttg gaaaacantc 780
cccttttnc aagtnggggt aaaaccnaaa aggcccnnc cattnccctt tccaacaatt 840
tgccccctg aantggggaa tggcaattng aacctttttt tttttgtaa attccgttaa 900
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<210> 1570

<211> 931

<212> DNA

<213> Ctenocephalides felis

<400> 1570

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ttaatctgct gaagaatttt acgaagacta attagtttta aatctacagt atggatgtgt 180
tgaataggcc cgctcacgaa tttggaaatg atgaaacagt tgaaacttta tgggctatga 240
aagccatgga tcatgttatt gtctatttta atgtacattt attaaaatat ttatcttcaa 300
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gatggagaga attttgtgaa cgattcaaac atatagaaga ttcagttttg gtccttaata 540
cgcttagatt gcacattgga ttatagtcca gaaaatacta ttttagttnc aagagtcagt 600
ttatgccata gaactctgct gaaataaaga aggccttaat gactgnatca gaaaaaata 660
tgctaagtga agtgatgtgc gagtaatgaa aatgtaaatc catagaaaat aattagcatg 720
ggtatggtta aaaagtncat gaaaaaaaag nggggtttta tnttttttn tntttaataa 780
angattttt caaaaaaaa aannnnnnnn nnnnnncctt gggggggggc ccggggccaa 840
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gaaaaccctg ggtacccaa ttaatnctg n 931

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<210> 1571
 <211> 942
 <212> DNA
 <213> Ctenocephalides felis

<400> 1571
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 gtcaaaacct nggcggaccg acaatgaagt tcctttactg ttattcctgt gggtacagga 180
 aagtctttga agactacatc ggcatcatcc aacaaaagta ccccgaaatc aggatagacg 240
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 aagagcccac gtggtggacc tgggtgcctc agaacaaaat gtactcctgc atgatgttct 420
 tcttcttggc aaacacgata gagggacagc tgggtgtctt aggtgcgttt gagatttctt 480
 taaacgatgt ccggttggtc ccaagttgga aacgggaaga ataccttnac cccagagtt 540
 gttcagatta tagataatca tatgaatatg gttggctgnt aaagtcgant ttaaaccgga 600
 gttttgngaa atgaataatt atgggttaat aacaccgttt gntattttga atttttgggt 660
 aaaccaaactn aaatngnaat tttttctagg gttggtttcc attccangga ttntaaatta 720
 aaacctgnna ccttcnntan tatatatatt tgaagangng nttgatgnag aaattatttn 780
 attaccttta atggatattt aanaaaaaan gggggtataa attttanttt ttntttggga 840
 aaancnanat annanantnt ttatngnggg ggggggcccg nccccatttn cctnaggngg 900
 cnatttaaat ttatnggcnn ngnttaaac ctggngtng gg 942

<210> 1572
 <211> 918
 <212> DNA
 <213> Ctenocephalides felis

<400> 1572
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 tggccgcaag gaagaaattc attttgataa aatcacttca aggattcaaa agctatgtta 180
 cggattgaac atggattttg tagaccctgt ctcaataaca ttaaaagtca taaatggatt 240
 atatactgga gttacaactc aagaacttga taatctggcc gcagaaactg ctgctaccat 300
 gacaacaaat catgctgatt atgccgttct tgcagcacga atagctgttt caaacttgca 360
 caaagaaaca aagaaacaat tttcagatgt catggatgat ttgtcaatat gactaatgag 420
 tatactaaaa agagatcacc aatgatagca gattatcatc ataaaaaat aatggataat 480
 gcagatcgca ttaactctgc tattatttat gatagagaat tcagntacaa ttactttggg 540
 ttcagacatt ggagcgtctt atttantaaa aattatggga aaagtagttg gacnacccca 600
 catatgctaa tgcggtagct ntttggaatc attggggaaa acnntggtgc ngcaattgat 660
 ccctttactt antttctgga aaaaatttta ctcatgccna gccacatttt ttgttgtnc 720
 ccnccnact caattatnaa gtggnntttt ttgctttcca naanaangtt ttganggggt 780
 ttgntcttta aaccaagngg ntttttattc naaaatgggg gnggggtttg gngaccctt 840
 tttggttttn gggaaaaacc ttctttgggg gacccaaggg atttttaagg gnttngtct 900
 tcnccggttt naaanaan 918

<210> 1573

<211> 922

<212> DNA

<213> Ctenocephalides felis

<400> 1573

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cttattagaa gtgtcatatt gcaggagcga tctggaaaaa atacctacga ccacgattcc 180
ttaacattgc aatataaatt agacaatgaa tttgagctgg tgtttgtggt tgcctttcag 240
aaaattttgc aactgtcata cgttgataaa tttttaaatg atgtacattt agagttaga 300
gataagtata agaattgactt acaaaataaa aggtattttc aagaatttga ctttggtgct 360
tgttataaca gtattctgcg ggcggtgaa gaatggggtc ggactcaggc taagtacct 420
aaacaaatgc gttcttttga agattctatg aaatctaaaa agacagttgc ttcaatgatt 480
gaaagaaagg gcgagggaaa aaaagacccc agaagaatgg taaacaaaaa ngcaaaaatg 540
gttggtttga tgaagaaaaa attaatattt aaactggtat tggacccgng ccaaccaata 600
attccaaaag nggtgatcca atgattaatc atgccaaatc gatgggaact tgcnaaaaaa 660
atgggggcct nttaaaaaaa aaaaaaaaaac ttnggggggg gcccggnccc aattccccctn 720
tagggaggcg antacaaata actggccgcg gtttanacgc gggaatggga aaacctggng 780
ttncccannt aatngcttgg aganattccc ttttncaagt ggggtaaaaa caaaaggccc 840
cacnatgcc ctttcnaaaa ttggccnct gaangggaaa ggnaaaatnt aacggtaant 900
tttttaaaaa tccggtnaan tt 922

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<210> 1574

<211> 943

<212> DNA

<213> Ctenocephalides felis

<400> 1574

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tcaatctgag agtagtatat caaacttgat gaaacathtt gctaacaaat taggtttaa 180
tgaaaaagat gaaagtgatg aagatgaacc acaggtttta tcagaagtta caattgagg 240
tgtggttgaa tatattaaaa gtggaaaatg taaaaatata ataacaatgg ttggagcagg 300
aatttctacg tcagccggtta taccagattt tcgatcacca aactctggcc tttatgataa 360
tttacaaaag tataacctgc ctgatccaca agctattttt gatattgatt actttagtga 420
aaatcccaag ccattttttt ccttagcaaa agagttatac cctggttaatt ttcggcctac 480
aatttgccat tattttatta aactattgaa tgaaaagaaa ttggtattaa gacattatac 540
tcagaatata gatactttgg agagagtatc tggattagat gaagataaat ggtagangct 600
catggttcat ctacaaatca catgtatcgg tgnaggaaa gaaatnccct ggggtgatga 660
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ggatataaccg tctttggnga aaatttgcca naaagggtca ttggctaata aaanaagact 780
tcacccaaag ngccttggtt aanaatcatg gganccgctt tgggtggtcaa acctttgctt 840
ccttggtatg antgggatc ggaaacntggc ctaaactttt gattaaatta aaaaaaang 900
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<210> 1575
 <211> 931
 <212> DNA
 <213> Ctenocephalides felis

<400> 1575
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 tgctgtacgt gatcacgagg aggtctctgt ttattccgct tacgtcttac ctaagttgta 180
 cgctaagtta cactactgcg ttctctgctg tttcactctt aaggtagttc gcaatcgctc 240
 taaggaagat cgtcgcatta ggactccacc agtgagatca ttccaagag ataatacaaag 300
 gcaacaaaat gctccaagaa agtaaatgtt catattttta ataaaaaaaa cgacaactta 360
 aaaaaaaaaa aaaaaaaaaa aaaaaaannc ctnggggggg ggcccgccc caattcnc 420
 tatagnagat cgtnttacia ttactggcc gccgttttac aacgtcggga ctgggaaaac 480
 cctggcggtta cccaacttaa tcgccttgn gacatcccn ttccgccagn tggcgtatag 540
 cgaaaaggnc cgcccgatcg ccctccaac agttgcncag ccttgaatgg ngaatggcaa 600
 attggaagcg ttatatttng tnaaaaatcn cgtnaaat tgnaaacaa cttntttttt 660
 taaccaatng gccngaantc gggaaaatcc ttttaaatna aaanaaaan ccgataggg 720
 ttgggggtnt tccctttngg aanaaantc cnttttttaa naacgggggn cccacctna 780
 aaggggnaaa acctttttta ngngngaang ccctcgggna ccntccccct aatnaatttt 840
 ttngggngcng gggcccnaaa nccttaaatg gnancctaan gggnccccct ttaaaatttg 900
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<210> 1576
 <211> 907
 <212> DNA
 <213> Ctenocephalides felis

<400> 1576
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 ttataattaa aaatggctct gcaaagcttg aaagggtttt ctaaattgtt aaacaaatgt 180
 tcgaatcgtg tttcatattt aactgtaaga tgtgcatctc aatattatga catagatgat 240
 aacatatttg gattaaatga ggatcagggt cagttgagga agaccatttt cgattttgcc 300
 cagaaagaat tagcacctaa agcagctgaa attgataaaa ataatacctt taaagaactg 360
 agagagttct ggagaaaatt aggagacttg ggaacattag gaataactgc tccagcagaa 420
 tacggtggaa cagaaggcac atatttagat catgttatta ttatggaaga attatcaaga 480
 gcttcgggag ctattgccct ctcatatgga gctcattcta atctagcaat aaatcaaatt 540
 cgaaggaaat gaactgatga gcaaaaagcg aaatatgtgn ctaacttttg tctggtgaac 600
 atatcgggct ctacgatgct tgacctggct tggacagact agttctntga actaagagcn 660
 gagaggaagg ngattttttg tttcaaggga ataatttggg atactaaggc ccaannctga 720
 acttaanggt tatgccctnc catccaatgt aaagcctcac atggaattcc gcnttttttg 780
 anaaaaaggt ttganggatt aatnctggcc aaaattggtt aacttggaan ggaggtcaat 840
 tccngtgacc tgnntttcaa actgaaggtn cnccccnaa tttttngnga aaaggnaang 900
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<210> 1577

<211> 917

<212> DNA

<213> Ctenocephalides felis

<400> 1577

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tccaaacagg ttgcaagtgg tatgaagttt ttggaagagc gtatgtatgt ccatcgagat 180
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tgggctgctc ccgaatctat agagtatagg aattttacgt ccaaactcga cgtttgaggt 360
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aagaacggcg aacttataga catgctgaga aatggttccg gatgcgaaa ccggaattgg 480
ccggagttga aatttacgaa ctcatgaccg atggtgggaa ttcgccaaga atccagccc 540
acttttgccg aagtctacga actgatcaac gaagttacga aagtcgatta tccgaagccg 600
aagtcgtcga agaactaaat taatgaatag ttgcnagttt tggccatntc ttacctntaa 660
aaactaatta ttttttattt tagtttgga aaaaaaaaaa aaaaaaactn nngggggggc 720
ccgnacccaa ttccncccta nggggccgtg ntncattccc tggccggtgn ttnaaacgtc 780
gggnttggn aaaacctggn gttcccaact tantcgcttg gagaaatccc nttttgncan 840
ttngggtana aacnaaaagg cccnccgtc cttcccaaa tttggccnct naatgggnaa 900
ngcaaattgt acctnt 917
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<210> 1578

<211> 939

<212> DNA

<213> Ctenocephalides felis

<400> 1578

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aagaggacaa ggaactttgg aatcggtcag gatattccagc caaccagaga cttatccaga 240
tgctgtgagat ggcccaaata catcagaatc caacgccaaa agagcgttt gcagaagcgt 300
ttgaaggtcc ctccaccaat caaccagttc acgcagactt tggacaaaca aacagctaca 360
cagttgttca agattttaga aaagtacagg ccggagactg ctattgctaa aaaggcacgt 420
ttgcaagcac gtgctgaagc taaagcccaa gggaagggaag acacacctac aaaacgtcca 480
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tggtgtgatt gcccatgatg tggacccct tgaattggtg ttgttcagtc cagccctatg 600
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cgcaggaaaga catgcncatg tgtagcacta accaatgttg acctggcgac aggagtgggt 720
ttgaataagt tgggtgagc cgcaagacca cttaccgat nggccgatg agatcaaaag 780
gcnttggggc gngngnggtg tgggatctaa aacccttgcc anaattgcc aagttgganaa 840
aatcaaggcc cgggaaatgg cncaaaaacc ggggtgatna atattgattg ganaaataaa 900
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<210> 1579

<211> 919

<212> DNA

<213> *Ctenocephalides felis*

<400> 1579

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aaagcagctg taccaattgg aaagaaaagct gaaagtgata aagataaata agcacaaaaa 180
attatatatta tataataatg tggatatatta attgtatagc gatatacata actcttcaaa 240
cataaccaca ccctttttaa caataattaa atcaactaaa tatgaaatat atattatata 300
tggttcgattg tttggacata tcgaaagcta tatgtgaata ttgcaaatcg aattgatttg 360
tagtatatat ggaatcaatt ttttttcatg atgaaccaat tcgatagatt tatagaaagc 420
ctttttatatt taaatatatta catttgacac taaaaatagg tatcttataa aaaaatttca 480
tttaatacat ataatatgtc tcatatataa tatttattat acattctttt aaagaaatat 540
gttaaaagggt tgnaaaatat tacttttttag tattagggtc tattcaaaaa ttggttggtg 600
ggaattatatt ttggnattgg cggtaaatatt tatttttaaa taatatgcaa ttctcaccct 660
tgnctttaag aataatnttt taaatatgga ttggtnaaaa gtaangtatg aattttactt 720
ntcgcatcaa tncaggatc attaaatttn ttttaggagt ttaaaaaana aaangcncnn 780
gnnnnnnnnn nnnnnntnnc ctgggggggg ggccccgncc caattncctt nagnnggggn 840
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```

<210> 1580

<211> 935

<212> DNA

<213> *Ctenocephalides felis*

<400> 1580

```

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caatatggta cagctggatt tcggaccaaa gctacagact tggactatgt catgtttcgt 180
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ataactgcat cacataatcc tgaagaagat aatggtataa aactcgtaga ccccatggt 300
gagatgcttg aacaaagttg ggaagagtta gcaaccactt tagttaacgt tagtgattct 360
gagttagagg ctacagttga aaaaattgta aaagacttga atatcgatct taatttgaag 420
gctaattgtt ttattggtat ggatacaang tatagtacgt ncccagtctt tgcaaagctg 480
ctgttgatgg agtattatct atttcggggg atctcccaga gaattttggt attggtaccg 540
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ntggggggca aaaaangntt caatttnaaa aagacngng gangtttgat ttgtttttta 780
acaancggcn aaggaaaata aatnttaggn gnggggctnt ttttggang acaccattcn 840
cnccccaagg antncnntta aaaaantttt canngngntt tttgttgaaa cccaancgna 900
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<210> 1581

<211> 920

<212> DNA

<213> Ctenocephalides felis

<400> 1581

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cattttattgg aggaatatta attctatttta tttatataac aagaatttca aatactgaat 180
atTTTTcttt aatatTTTtat aaaactattt ttattatttt attattaaca ttaagaatta 240
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ttaattcaaaa cttacttata tataatttta atctaaataa attatataat tttccaaata 360
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ttacagatat tttttatggg cctttacgaa aaaattttta aaaaaaaaaa aaaaaaaac 480
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cgggtttacac ggccgngact gggaaaaccc tggcgttacc caacctaatc cgccttgnca 600
gcacatcccc tttcgagct ggcgtaatag cgaanaaggc ccgcncgctc gnccttccna 660
caagttggcg ccaccggaan ggggaanggc aaatgnnagc gttnatnttt tggtaaaatc 720
cggggtaaaa tttgntaaaa ncgnccattt ttaaccaatn ggccggaatn gggaaaccct 780
tnntaatnca aagnattgnc cgggntgggg tggggngtgg tcngttngga acaaagtcct 840
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<210> 1582

<211> 904

<212> DNA

<213> Ctenocephalides felis

<400> 1582

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cattaattta ttttactggc gtcaatatga cggatcaaaa cgacgaatta gttgaatctt 180
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gttctttaat ctattatgtg gcaacaaaaa tcaaaccaca gattatagat caattgcctg 360
tacttgtaaa atatatatca acatcaaaat tagacacaac agttagagtt gatgcggcct 420
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gaattgggtg tgtgtgtacac ctgaacaaat tgaaaaagca gtaaatgagg ctatgttgga 540
acataaagag gcaattcttg agaaacgata cagatacaac actggctcct tgatgcaaag 600
tgtaagagtt ctttaccctg ggcagatggt cggctataaa tgtgaagtgg acttacaggt 660
tttgacttat tggggnccaa aactggtgcc gattancacc ttggcaaaaag tggaaagaaa 720
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aagcagcttg gggccatgtn tttntgaatg atgaaaaaaa agncctttta tgccctctggg 840
naacctttaa aacnggggga tgagtacccc cctcccatga ctttnaaaaa cntttnaana 900
aang 904

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<210> 1583

<211> 907

<212> DNA

<213> Ctenocephalides felis

<400> 1583

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ataagggcgg tcaaactagt ctctcataat ttgatttatc tcagaagcca attatttcgt 180
atatgatttg gcgccaattc cattccccag accgcccgtc aaggaatacg tcagtgcaca 240
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gaaattgtgt cagtttaact agattattga gattgtgcaa tattagtctg gggtaggttt 600
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gatggattag aaaaagttnng ctgggctgng atttattcaa aagttcaagc ttattcgacc 720
actggttng aaaccacaa gaaggttgag gatcaccagt ctcccaacna acaaaaattt 780
aaatctntca caagatatcc cagtctgtgg gtcttttggg gcatnaaagg aaacnccctn 840
ccaaagngan gattaattgc ctggccctct ttgntggggc ggcttgattg gtatatcnaa 900
agcctntg

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<210> 1584

<211> 898

<212> DNA

<213> Ctenocephalides felis

<400> 1584

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gataagccaa tgttactaaa aaggcaattt ctttattttg aatattatct tatcgagtag 180
gtaataacaa aataatcaac aaacgtgaat taatgaagtg ataaaaaata ctgacaataa 240
tagtggtcga aacggagatg cttagaagtt ctgtgaaaaa tatgtgatcg ttaatttgtg 300
catggacaaa ttttctatca aaatgaagac taaagatatg gaaatgaatt tagaggaact 360
gaaaaatgat aacatcaaga aacagcagga tgaaatcaat ttttcatttc gaagtattcg 420
ttatacaaga tgcgacagaa aagaaaaaaa atcagtgtgc atactgaaag gagtctcggg 480
atgctttaca tcaggaaaac tcgtggccat actaggtcca tcagggtgcag ggaaatcttc 540
tctgctcaat atactatcgg ggntcagaga aacaggccgt gcaaggntca atccgtctca 600
atggagccaa tgtgacatta gataaacggg tttaggaaaag cctgttggtg tatacccaag 660
atcngcatgc tggccactac caccgagaga actntctgtt gcagcagact gaaatgaaac 720
agaaatcggg taaaactgtg gagatgcatg caaaatgctt acttaccaat gttanaccnc 780
gattantgcn ttttgngggc aaaaaaanat ttcaatggng tcaatgggga aaatccccaa 840
tntgttttgg tgancccttn ggccttgaag ggttcgcctt tnactaaggc cctntttt 898

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<210> 1585

<211> 912

<212> DNA

<213> Ctenocephalides felis

<400> 1585

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ctacaatgta cagaaaagga aaatttgact ttcctaagag atttacagga caagaaaaaa 180
gtgtatgggt tgagtatata gaattagcta tcaaataata gccattaaat ttgggacaag 240
gttttcctga ttatccttgt ccagaacatg ttataaaggc tttggcagat gttgcaactg 300
gacccgattc attattgcat caatatacaa ggggttttgg acaccaaga ttagtaaatg 360
cattagccac tttatatagt aaagtcttga atagatcaat tgatcctatg aaagaaatat 420
tagttacttc ggggtgcttat gaagcacttt actcaacaat tcaaggacat atcgatagag 480
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ctgaagggtg ttgcagatac attgcattaa aaccatcttc tgataaatgc tctgatgctc 600
aaagtctctg tggattgggt tcttgataaa aaagaattgg aatcattatt caatggaaaa 660
aaccaagctt attatttttna ataccctcac acccaacagg aangtattcc cttggaagaa 720
cttgaattta tgntgactat gtaaaaaagg atgtctttgt tatcggtgaa gttatgaatg 780
gatgnggtta agctcatgac ctataaaatg gtaccttcg gatgggggaa aaactttact 840
ntggactgcc gnaaaacttt ntggtcaggg tggaantggg ngggcctttg gncctttgga 900
ttactaaaaa aa 912

```

<210> 1586

<211> 941

<212> DNA

<213> Ctenocephalides felis

<400> 1586

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agtgtggcct taccaatctc catatcacac cggcgaacat catggtcaaa cagactctcc 180
aatgggacct tcttgacgct ttagtaatcc ggaagctggc tgctcgtgct cgcaccagt 240
ccatcaacca gatgacgtgg atgatactgt ttggttttaa gctgggtgat atggatattg 300
gttaggtatt gaaatcttga ttcttatgtg aactcgagtt tatttaatta gaatattata 360
ttgtaatcgc attttatagg ctgtggagat aaacttcttg aataatata taaatattgc 420
ccacatttgc tcataatttg taggagtcaa taacgcaaca gaatgacttt tgaataatat 480
attagtcatt gacatgagcc ggtgttttaa aaatgcttag tataatgggt aaattcttaa 540
tagtgaataa aaatattaga aaaaattggt ttctggatgt gattcaattg gatataattac 600
tattgaatag gtaacaatg aaccttattg gatcaatgtg cgatatataa aatacacgtt 660
gttggaataa ttcatctatc tcttgataaa ctaacttttt tgctcacttc ttcgtacctn 720
aaaaactctg gngatTTTT taaaggnaag ttttngctn tatggatttt taaacttgac 780
ttaaaaaaaa anaagtcnaa atggtttctt aatattcacc gnnccannaa anatagttct 840
aattattgng ttancatttt tttttaactt ggaggcgtat nttgggntn gggntnaana 900
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```


<210> 1587

<211> 925

<212> DNA

<213> Ctenocephalides felis

<400> 1587

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tgagtgaaca ctttttcaca cttttggaag aaatgggtta tttgcatcta caagctacca 180
aaccagatac agtgggcggtt gctttaagag attcaccagc tggtttagca gcttatattt 240
tggagaaatt ttcaacatgg actaacagat cttggagggtc agttaagat ggaaacttgc 300
tgttaaaata caatattcct gaacttttag acaatgtcat gatatactac gttactgatt 360
ccattactac ttcaatgaga ttatatgcag aatcattcac aaaagcacac cttgctttga 420
acttagatag ggtgcgcaat catgtcccag cagcctgcgc aaaatttcca aacgagttgg 480
cttatgtgac ccgattgcca acttgctgag aaatataaaa ctttattgca gtccaatgac 540
atgccaagtg gtggccattt ttgcagcatt tgaggaacct ggtctttaac agaagacatt 600
ttcactgagg tgaaaaagtt taaaagaatt ttattccaaa aaagctgaag aaagccaaaa 660
gaaagctgat ttgggataat tttggtggtg gatataataat tatgctaata atatttggag 720
ataaatttaa cccattcatg gtcacatatn ttttttcctt cctccctttt tttaaataaa 780
aaaaaaaaaa actngngggg gggcccgnc caattcncct tntgngagtc gattacaatn 840
actggccgng ttttanacgg tnggactggg aaaaccctgg ggtanccact taatggcttg 900
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```

<210> 1588

<211> 892

<212> DNA

<213> Ctenocephalides felis

<400> 1588

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ttgtaaataa ttagtcatta ataaaaaatg gctacatatg aagaatttat tcaacaaaat 120
gaagatcgag acgggattag gcttacatgg aacgtttggc cttctagtag gatagaagcc 180
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cctttatgcc aagttgacta tagagccaaa ttatgggttt gcaacttctg ctttcagagg 360
aatccgtttc ctccacaata tgctgcaatt tctgagcagc atcaaccagc agagttgatt 420
gcaagtttct ctacaataga gtacaccatc acaagggcac catgtatgcc tccaatattt 480
tatatgtcat gggatacatg catggatgat gaagaactgg gtgctttaaa agctctttac 540
aatgtcttta agttatggcc ccaaatctct tgggtgggcta gtacattngg aaaatgggtca 600
ggtcacgagt aggactgang tgtcaaagac ttgttttagag gcctaagatt aacagctaan 660
caatcaagaa agttaggcat tgtcggaagt gatncccaac acagaaaggc ccaatgccca 720
caataagcgg gccagccaat anatcatcca cctttccata aangcaaat gntttaccgg 780
ccttttggga naacggnacc agaacccttg cctgtncctn aagggaaggg ggcttacgtt 840
aactgggnct gatttttctga agcccngggg ccttttngn gctttttgnc cn 892

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<210> 1589

<211> 928

<212> DNA

<213> Ctenocephalides felis

<400> 1589

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taaaactgtg cctaattcca ttcagtgatc gaaaaaacta tataaaacca gttagatagt 120
aataatacat aattttacca gcaacgtgca ctgtataacc tacaatcac gatttcgact 180
gaatgaaatt atggacgctg aagatttgaa tcagttctac aacgggcggg agatgggtgc 240
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ccaggccgaa ctgagggcat tcgatggagt gtcagcagga aaatacacia ttggactcgg 360
ccaagcaaga atgggcttct gtggtgaccg agaagatatt aattcattgt gtttaacagt 420
tggtaaaaat ttgatggaaa gacatcaagt gccttatgat agaataagggt atttgggagt 480
aggcacagaa acccttctcg acaaatcaaa aagtgtaaaa tctgtcctta tgcaattatt 540
cgaaccact gcaangtgt actgatatcg aggtgtaga tctacaaatg cttgttatgg 600
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gaggngcaag tgcttgaacc atgctgggtg gtcccgact tcnnttgca tgggacaaag 780
gcttanggtt ttatgntga nacatgctta ttgattttt caacctggat tgggttcaaa 840
gnttcccccg tggangnaa aataagtttt aatgntnttt ngggagcnc tggaccttgg 900
tttgctntta ctgggaaaaa agggcaag 928

```

<210> 1590

<211> 922

<212> DNA

<213> Ctenocephalides felis

<400> 1590

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tccggacggt gcatatatcg cgatcggctg ctttgacgac tccaacgtcg acgaaatgat 180
gtatttccgt tacggagagt ctggtactat tgaaagccaa tatccggaat tggtagatct 240
gcgatatcca aagcccggtg gagtaaatcc gacagccaaa gtaaaagttc tccgtctgaa 300
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ctaaacagac gccaaaacta ttctgttatg caaatctgca atgcaggac cggagaatgt 480
aaaacggaac tagaaaccag catgcctggt tggatcgacg tacgtaaatt ctggtttact 540
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cctcatatag taggagcccc aaagaaggac ggaaccgaaa ccaatcccca gtgggaaatc 660
gtctggtacc aatattatag gtctgatgcc gaacggggat ctttntntt actcagcaac 720
attggtgga aacngtcccc ccaagaaatt ttggtngncc ggttccaaag cttgtccttg 780
nccgtcactt ntgacccaaa atgganataa tgcngatttg gtaagngat ttaacnaana 840
gttntttttg cttgcttgat tggcttggac caaccnccc tttgcgtnt ttttgaccgg 900
ggaagatnaa ancttgcaac ng 922

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<210> 1591

<211> 926

<212> DNA

<213> Ctenocephalides felis

<400> 1591

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tgtttgtgaa aatttgtgtg aaaaagtcta ttaagcatct tcaagtttg tatggctaaa 180
cctcacctga agaaagtagc gttcctgagg acccgctatg tcacagcact aaaattaaga 240
tttttcttct ttgtgacaat accagtttgt tatttggtat ttacagcggt aacaaaacaa 300
tccgtttctt ctgaagatat tgaatattac ccgcagacac cagaaattac tggatcgcg 360
aaattgcttg gcctatcttt caccgatgcc aagaattcga gcctggcaga tgatcatggt 420
cataactgca cgcccgagc tatcttagat tttccctctg atggattcac caggagcaa 480
agaagacagg gctggcgct ggtccatgcc gcatcgcat ctactgcttc ttggctatta 540
gcattagttt gcgatgacta cttcgctccg gcaattgaga tgctgtgcaa aaagctagat 600
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attaattcng naggacttca tacagaagga gacctcggg tcggcncgg cgnggggttca 720
tctgnattta atatactggc cgccctgctg tnggggctc tttgtgggaa ggtagtanaa 780
tttaaatggn gccagaacc tcgggatntg gcttgnntgg atttgccgaa ttggccctnt 840
tcctacnttt ntaanatggg aaaagtttgt gggtgaanc cctaacccta aanctggctt 900
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<210> 1592

<211> 943

<212> DNA

<213> Ctenocephalides felis

<400> 1592

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aaaatatggc cagtgtgtg aagcagttgc caagaatatc cggtccaaa gtagcgaaat 120
gcatttcgag ccgtaattat tattcgtagt taaatgagcc tgcccaacaa atcaaagaca 180
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tatacgctca gcctgattgc gaaggatgat ttagatctgt atcattcttc atgggaggca 420
acgtacgtgc agctgtgaat gaaggacgag gcatgcaat tccaatcttc ctatcagaaa 480
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atgcaagcat caaaagtgat aattgcccaa gttaatccta aaatgcccg catttggtga 660
ctcattggtg cacaaaaagt cacatagata tgctgtanaa attggtgaaa ccgtgggtacc 720
catgngngna aaccaccta tganggaaga aactgcaatt ggngcacata ttgnnaataa 780
cttgngngaa aaaggngccc actttaaatg ggtntnggaa ccattcctga tgcngtntt 840
tgccaacttc cttaatcnca aaaatnttgg aattcatttt tgaaagtttg gccaanngnt 900
aatngcntta aaggaaagga ngnggttgtt ccaaaccta aat 943

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<210> 1593

<211> 929

<212> DNA

<213> Ctenocephalides felis

<400> 1593

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caaaattgag atggctgaag ctgcatcacc tagtacagaa atgccacact caggtggaga 180
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aattgggtact ctaagaactg ttttggcaag caaagttcga agaagtggag aactgaaagc 360
taagttagggt atcactgttt ggaagaact aactggggat gtcaatcaaa gtctacgtac 420
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aatctgaatc tttcaaatca ctagaagaaa aaatgggttc agcctatgaa aacgttaaaa 660
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ttaacaagat tctgttcaac ttctactntt cctgaaaant caatttcaac cagtaccntt 780
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tccggnccac ccgaagatgt ttttccctac caaacttgggt tcacatactt tnttggaat 900
cttttccatc caattcatta tttttnaag 929

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<210> 1594

<211> 938

<212> DNA

<213> Ctenocephalides felis

<400> 1594

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gtcagattta tgcaggcgat ttttataaac atggacgtcc taatgtacca ttcagagtct 180
gatacaccag ccatggccag gacttcaaat ctaaacgagg aattggggat ggttaaatac 240
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gttgatggac ttgatattga ggatgctcag aaaagcgatc tggttcagaa tttactcaac 420
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agactttagt nagtgggtga aagaaatacc gnttcttcat ttgaaacccg gncaccacat 600
caccgtaaaa antaaacgct tggggtgaaa ttttaaaaat tgagatattg gatggtctcg 660
aatttacttc aacaggaaaa gaatgtttnt tgnttggtag aacnccagg gccaatataa 720
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ccaattnccn ttaaggngng nggattacaa ttnntggccg cggtttcnac cncgggactn 900
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<210> 1595

<211> 929

<212> DNA

<213> Ctenocephalides felis

<400> 1595

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tccaaacttg caagttatta aggctttgca gtcgttgaaa tctagaggat atgttactga 180
acaatttgca tggaggcatt tctactggta tctgacaaat gaaggatttg aatacttgag 240
gacatacttg cacttgcccc cagagatcgt gccctccact ctcaaactgc aaaccaggcc 300
cgaattggca aggccaagac cagctgccgg cccaaggact gaaggatctc gtccagctga 360
agacagatct gctaccgtag ggcacctggt gcacctgggt gcgctgacaa gaaggctgat 420
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ctcaataaat ttatataaag taatttataa taaaatatca ataaaacatc ttattgataa 540
accnnnnnnn nnannnnnnn nnnnnnnnnn nnaacttgng ggggggcccc gggncccaaa 600
tccnccttta gggagtctan tanaattcnc tggccggngt tttanaacgt ngggatggga 660
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aacnaaaaag gccccaaccg atcccctttc caaaaatttg cccaccttaa tggnaaaagg 780
gaaatttgaa ncttnatttt ttgtaaaaat ccggtnaaat tttgnaaaaa aactnntttt 840
taaccaanag gccnnaaata nggaaaatcc nttttaanna aaaaaanaan cccgaaaagg 900
ggtngggggtt ttccaattgg naaaaaant 929

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<210> 1596

<211> 935

<212> DNA

<213> Ctenocephalides felis

<400> 1596

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tcttgagact tcgtggatca attccccgtg agaagacttg ggatgtcgta gttgatttgt 180
tcttctaccg tgatccagag gaagtagaga aagaggatct tgttcacaag gaagttgtgg 240
ccaaagtga gactgctgtt gctcatgata ctgctgaagt atgggcagga gatgagccag 300
ccactcaatt atggactgat gatgcacctg ttgctgcagt tccggctgtt taccctgctg 360
ctgccagcca agattgggcc gagcaagtgc aagaagaatg ggctgccaac cctacccag 420
ctgctggtca aactacttg ggaagctcca cacaagaatg gtcataaatc aaatgatact 480
ttttgtattg gataaatgaa ataatgaaa attaaaatta aaaaaaaaaa aaaaaaaaaa 540
aaactcgagg gggggnccgg tccaattcg ctttatagga gtcgtattac aattcctggc 600
cgncgtttta caaccgtcgn gactgggaaa accctggcgg tanccaactt aaatcgctt 660
gnagaanaat cccctttcgc aactggngta aaaaacnaaa agggccccacc cgaatgcctt 720
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aaaatcccgg ttaatttttt gtnaaaaang ntnntttttt aaccaaangg ccgnanttng 840
naaatncntt ttaatnaaaa aaatancccg gaatggggtt gggttttttt cnatttggn 900
caaaaatccc tttttaaaaa acnnggcnc canct 935

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<210> 1597

<211> 941

<212> DNA

<213> Ctenocephalides felis

<400> 1597

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tgctttgtgg aaggaaagtc taaaataaga atataaacta tgccgggtac cgggacgttc 60
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gagaaatacg ggacgggtcg cgaatgcgat gttgtcaaga actttggttt tgttcatatg 180
gagaccgaac agcaagggtcg ggatgcaatt cagaacctaa acggctacgt aataaacggc 240
gaggccataa aatgcgaagc cgccaagagc cggagggcgc cgtcaacccc gacgacaaag 300
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gcgagcggtg acgtgaacga ggcgattcgg gagctgaacg gaatgatggt cgacgggcaa 480
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gcggcaccgg cnttctgngc caaccggatg atgggccgga ttcccgggat tctattgacc 720
nttcttcgat agangttttg atggttcaag ggatttattt gganaggcgt tnttctggng 780
ggaatgcccg gtntgcgtgg gggggccaaa atttattgcc gcccaaggaa aaaanctttt 840
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```

<210> 1598

<211> 937

<212> DNA

<213> Ctenocephalides felis

<400> 1598

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ttacgactgg tctggcgata gttgggttgt gattttctcc catccagctg acttcacacc 180
cgtctgcacc acggagttgg gtcgcatggc cgtccaccag ccgcacttcg tcaagcgcaa 240
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catcaagtct tactgccagg acattcccgg aaaattcccg taccatca tttccgatcc 360
gaaacgcgag ttggctgttg ctttgacat gatcgacgaa gagcacaagg acgacctgc 420
tcacgccatg accgtcagat ctttgcgtg atcgatccga accacaaatt gagattggcc 480
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tatgcaattg actgatcgtc tgaaagtcgt cgcaacgctg ccaactgggt tccttggggg 600
aaaaaagtaa tgatcctgcc ttccgttcag aatgaaggaa gcagccaact gtttccaaa 660
ggtgggtgaca cttgttctat gccttcaggt aaagggtttg gtgccncac cgactgggtt 720
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ttgcnaaaan ttttaatttt tttttatga acaanttttt gaacctaaag cnttttaaan 840
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ggtttntaa atntgggaaa ccctttttt naatntt 937

```

<210> 1599

<211> 648

<212> DNA

<213> Ctenocephalides felis

<400> 1599

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gtcttcgggc cagggggcct ttggcgggac atacacttgt gagagcaagg gcaccgccgt 60
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gcaaggaacc tgcctgtgcg agctgcctgc agacggagcg acacgccagt catgacgtgc 180
aggcgatcac tgcaatgtgc aaggcgcaaa agactgaatt atcccaaaat ctgcaacagc 240
tttctgaaaa agcgaggctc acgacagaat tcatacaacg gctaaaaggg atgagtgaca 300
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tcacagctat tttaaatagg cgagattatc tcctagaggc aatacgatgt gatagagaag 420
ctaaactcag agcactcaag gaccagcatc aactgctaca ggaaaattac aacacacgac 480
aggttaatac aatttgatag aggttcaaaa gaaacgatag tgtgatttta caggtgggtc 540
atgtatagcc ganggccaac gacatcgctg catcggaggc agagcncgcg gtgttnnaca 600
gtcatctacc tgacgacagg cgtctaggca tgnctactact tntcaang 648

```

<210> 1600

<211> 650

<212> DNA

<213> Ctenocephalides felis

<400> 1600

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gatgctcttg gggtttcccc agtgggtcca ccaatgtaaa taatcgaatc gttggaggca 60
aagacaccac aattcaagaa catccttacc aagtatcaat tttgtacaat gatgaatata 120
acagctgtgg aggttctttg atttctgaaa aatgggtttt gacagccggg cattgcatcg 180
attctttcaa attctacatc cgtgtgggaa gttctcttga aggcgaagggt ggagctgtgc 240
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tggctgaacc tgggtgttgaa cttgaagaag gaactctact aaatgtcacg ggatggggta 420
gccgtcgatc cagcgcagct ctacaaatag taactgtcca tatgtatccg aagaagtctg 480
caaaaaatca cattcagaca ggtgatctcc catatatgtc tgtgtggtaa aatgcaggag 540
gagaagnctt tgcattgtga cttgnggcca gtgatcaatg gntcaattgg attgttctgg 600
acttgatggn ctccactttc tcgttttcta atnctgntnc agatggtaag 650

```

<210> 1601

<211> 649

<212> DNA

<213> Ctenocephalides felis

<400> 1601

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atttnagcca accagcaagc agaaacattg cagactcaat taaatctaata gtcccagcaa 60
cgagatgaac ttttgcccaa gatgagtgc actgaagaca aatataatag acaagttgct 120
gctctaacca atttgcaatg tgccttagaa caattccaaa gagataaaga tcangaaatc 180
caccaatgca cagaaaggat aagaaaccaa ttggaattgg aacgacagga acaaactgct 240

```

```

ttaaggaacg aaatccaatc cctaaaaacg caacttagtg aacaacaaca aggcctgatg 300
gctgcaggaa gacttgccag tcaacttgaa tcctcacaaa caactgtaca aaatctcaga 360
caagaattga aagagagcca agacaaatac gctgctctga ccgccaaagt ggagtcttca 420
aaaaacaacc aagccgacaa aatcgagaag agcttgtaaa aacctaagtc tcggtacatc 480
cagctggtca acaaaacgac angacaaaat ctaaaatata tagcagtctc gacttcacca 540
gtcggatgcg accgatagct ttgagcacca aaatatntgg ttgagatctg tctggatgga 600
gagaggctgt aancttgcn ttttggaag attaccaac gntnggagg 649

```

<210> 1602

<211> 646

<212> DNA

<213> *Ctenocephalides felis*

<400> 1602

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gttttgtgga gctactggtg gagctagcaa ctttttatta tccgtcaggt gtgtaagga 60
aaaagataaa cctgtgtcga tgggttttgg attgatgata atgtccttgt ttgccttcgt 120
accgtcacca atatTTTTTg gagcaattct agatcaaaca tgcatagttt ggggaaaaac 180
atgttccgga actggaaact gctggctata tgatgttgaa tctttgcgtt acatcatgaa 240
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cgtaaaaaat ttaaaaattt acgatgaacc tgatgatgac gaccaagaaa tgaattcttt 360
gaaggcgcaa aaggcggtat gagctgctgc aacttattcc aatcgaatct ctctatacaa 420
agtcataata agaatagtac ttgaggaatt taaaattaat ttaagttgta atgcaaaaaa 480
tgtaactgat taaaatatat aaataaataa gtngaactat aaaaaaaaaa aaaaaaaact 540
cgngggggcc cgggcccaat cgcctatagg agtcgataca tcnctggcgc gttacacgcg 600
gctggaaacc ctgcgtncac taatccttga gacatccctt cgcagt 646

```

<210> 1603

<211> 643

<212> DNA

<213> *Ctenocephalides felis*

<400> 1603

```

caancatcca tgttttatcc tgtatatatg tttgtgatgg caattgttta ttgatatgaa 60
attaaattaa tatttcgata aaacattcgt tattattaga atatttggtc tagataagtt 120
aaattatttt aaggggtcct aagtatttgt tttatttggt cgtttaattg tgatgtagaa 180
ttgtgagaat tcaatataat atattaaaaa tgtttcggca agacaattca aaagctttta 240
tgaaagaccc tcatactgcy aattgtagga tttatattgg aaatataaac gagcatgtga 300
attctcaaga aatagaaaca catttcgcaa aatatggaaa aattctcggc gttttgctac 360
acaagggatt tggtttatc caattcgaaa aggaacaatc tgtcaatgaa gccatcaaaa 420
tggaacatca aaatatgttt catggcgaaa catgattgtg agacgagcca aagcaatgta 480
ggaggagcag gtggtactct gcaggcctgt acgcaggtct ctccgaatcg tgatcgggcc 540
gttccagnac tcacacatga gggcagacag gtctggtccg gcctgtcnct tgtgcctcgc 600
attgcagcgg agtggttggg gctcaaagcn ggcgtgtgtg aan 643

```

<210> 1604

<211> 651

<212> DNA

<213> Ctenocephalides felis

<400> 1604

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tgttttatatt ccttcaaaat gtccgtacgt gtgcaattcg aaaacaacaa tgaaatcggt 60
gttttttagca aactaacaaa cgcttattgt ctcgtagcga tcggcggtac tgaaaacttt 120
tatagtgtct tcgaggctga attggcagag actattccgg ttgtccatgc tagcattgca 180
gggtgtagga tcattggcag gttgactgtg gggaataaaa atggtttatt ggtgccagct 240
tcgacaactg acacagagtt gcaacatata aggaattctt taccagaaag tgtaaaaata 300
caaaggggtg aagaaagatt atcagctttg ggtaatgtga tagcttgtaa tgattatgta 360
gccctagtac atccagatct tgataaggaa actgaagaaa tcctaacaga tgtctaaatg 420
ttgaagtatt ccgcaaacag ttgcagtaat gtcctagtag gctcatacac agttttaagt 480
aaccaagggg gcttagtgcc cccaaaacat ncatacaaga caagacgagc ttcgtcatac 540
tcaagtccgt agtggccgga cagtnccgag caggagnttt agcagagggt gnagcaacat 600
tgngtctctc ggggatggcc nacnactga ctagtggatg aagcggtcac n 651

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<210> 1605

<211> 637

<212> DNA

<213> Ctenocephalides felis

<400> 1605

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gttttaaga atatcaagt taaattaaac gcgatttaaa tttattgtaa catcaaaatg 60
gtgactttga catcttttat aaatacatc aacaataaac tggaagcgcc agtccagcaa 120
catctcaaag gcgtctacgg gtgtctggca gctacaacat cattagctag tataggggct 180
tacagtttcc ttgcaggatg gctctcagca ggattgttgc cggctttagg agccctagga 240
ttaggcttgg gcttgatgat gacctctcca gatgccaaaa attttaatat gagactagga 300
atgctgtag gattaggatt cttgtcaggt ttaggattag gacccttact agctcatgtg 360
gcccaaatca atccaagat aataacaact gcattatttg gcactacttt agtattcgtg 420
gcattcaact tatcagcaat atttgctgaa cgtggaaaat ggtattcctg ggtggaatta 480
ttgcagcgtt tgaatatgat gtcttctcct cttggcaatt ttctgcaaag actttgnttc 540
nagctccctt ntgagatatt gtntggggct tggccttatg atccagcttt nttgaaaatc 600
anactggacc caccagtggc tctttgctgt cttgatt 637

```

<210> 1606

<211> 644

<212> DNA

<213> Ctenocephalides felis

<400> 1606

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gtttttcagc ctatgcatat ttaggagaat ttnntggaga taaaacaaga gccagggcaa 60
tcagttgggg agcttctttt atttctatgg gaatggtatt tttgccagca attgcttggg 120
gaataattcc cctcaacttc agatatccca taccaggttt gggcatagac tggacggcct 180
ggaggttgta cgctcgtatc tgctcgcttc taatcttttg ggcctgatta tgattataac 240
atttcagaa acaccaaaat ttttggtggc cactggaaaa actgaagaag cactcgatgt 300

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tcttgctagg atgtacgcca gcaataaagg ccgtaagcct tctgactttc caataaaaatc 360
 cctggacatt tctggtgttt ctggtaacct ggcaaaagct ggaaatgctc gtgaaattgc 420
 ttctctcatg atacancaaa cagttccatt attcaagaaa ccacttgtaa atcacacttt 480
 tgattgtatt gtgcagttgg aatgttgcatt cttcagtggc atgtcatgtg gtccagtgat 540
 agctacgatt tgatgcatat atgacaattn gcactatatg atgctgtcag ttttgataag 600
 gccaatcctc catccttnga caatntgctc aangatccgg gttc 644

<210> 1607

<211> 650

<212> DNA

<213> Ctenocephalides felis

<400> 1607

gttggggccca atggtgtagg caaatccaca ttcttgaagt tattgactgg tgacatcaca 60
 ccaatcagag gagaagtaaa acgcaacat agactgcgca tcggtcgttt tgaccagcat 120
 tctggtgagc acctgactgc ggatgaaacg ccggccgagt acctgcaacg gctgtttgat 180
 ttgcaacatg aacgtgcaag gcgagccctc ggatctttcg gtttgatttc tcgtgctcat 240
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 tgtcttaatg cgcccgatgt tctcatTTTT gatgaaccta cgaataacct tgatattgaa 360
 tcaattgatg cattggcaga agccataaat ggatataaag gcggagtatt ttagattacg 420
 cacgacgaaa gacttattag agaaaccgat tggccttata tgtgatagaa gatagaacga 480
 taaatgaggt ggatggagat tcgatgacta tagaaaggat tattagaaaag ctgggtgaag 540
 tagtgaataa tcaagtattg ccgtaatgca nagtatcata aaagatatat atatacataa 600
 tgctgattta cttcaatcta tatgatatgc nttgnaataa angataagaa 650

<210> 1608

<211> 637

<212> DNA

<213> Ctenocephalides felis

<400> 1608

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 taaaaaatct acgacgtgac tgtaacaaat tcaatccaag aagcagccct tagatcaata 120
 ggtaacagtg gcgaattcga tttctggagt ccctcaaggg tccttgtaaa acctgaacaa 180
 atcgcaaaat tcgaaggact tttgaaaact ggagggaatcg acttccaagt tttgttgac 240
 gacgttgacg aatttgcacg taaggaaaaa gccgaaaatg aagtcgccga atctagggcc 300
 gaaggcgct tgtccttcac tgcttatcat cgttacgatg tgatccaaca atacttgagc 360
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 ggaagaccga tcaaagcgct gcgcttatcc agcgaggagaa acggtacaaa ccggttgagg 480
 tatggcctgc atccacgccc gagaatggtg gcaccaacca ccgcttgact tgtagaccaa 540
 atctggaacg gccgacatat tattgcgaat ggatgggtca tcattctgtt taatctnngg 600
 tacaatctct acctgggacg tttgagaac cgacaga 637

<210> 1609

<211> 642

<212> DNA

<213> Ctenocephalides felis

<400> 1609

```

gacnncggtg atgacagagg ccgggatggc gattggacat gtcctagttg ttccaacacc 60
aactttgctt ggagaaatgc ctgcaacagg tgtagtgaag aaagacctga tgggtgcaggc 120
ggcgggtgact ccggccgagg tgggtggccgt ggaggcggcc gcggcggtgg tgggtggaggt 180
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tttcgcggag gtggtggccg cgggtggcgt ggcggttatg gaggtggccg cggaggcgggt 300
ggtgatcgta attctggagg aggtggctca atgcgtggag gagatagagg acgagatagg 360
caacgacctt attaaataat tagcttgtaa ttttattcac cctcattttc acatcattcg 420
tactcatatt agattttattg atttttagaa ttatttatat gatttgtatg attcaatgta 480
acacaatatt gtaaacttta tattaagatt taataatata aaataataga aaaaaaaaaa 540
aaaaactcgn gggggcccg acccattcgc ctatagtngc tatacaatta ctgccgcctt 600
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<210> 1610

<211> 634

<212> DNA

<213> Ctenocephalides felis

<400> 1610

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acttttcgat caattcgat tagacttttt gataaaaaat gctgtctaaa gcttcgcttt 60
tggccaaggt atcccgcca ctgactgtgg cagtgcgaac aacatcccag gctgcaacat 120
gccctgctcc tacaaggta gaagaagccg atagtgtga aagagatttg gtcaacttcc 180
caaggccaac acgtttggaa cattcaccta aagttcgctt tggattcatt ccagactcat 240
ggtttgaatt ttctatgag aagaccggtg ttactggacc ttacatgttt ggaactgggt 300
taattactta cttatgttca aaggaaattt acgttatgga gcatgaattc tatactggta 360
tttcattggg tattatctgt ctctatgcca ctaaaaagtt ggggccacat attgcaaaat 420
acttgacaa agaagtgatg cctatgccga tgaatggaat tcagtcgtgt agaagaagta 480
aaagtaccaa gatgccattg aaggagaaag tggacaatgg agactgaagn cacttatgtg 540
tggtgccaac gtgaaatgtg cctgcacttg aactanagg accncntgaa gtnntagagg 600
tagaaacata ttccagttgg aaangaantt gacn 634

```

<210> 1611

<211> 639

<212> DNA

<213> Ctenocephalides felis

<400> 1611

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cannatgccg cgaggaaaat ataccaatca caaagggcgt aacaggcatt tcacaaatcc 60
agaagagtta gaggaacaga gaaagcaaga agaacaaaaa aggcaatggc gtagggatca 120
tggaacgaa tcaagttctg aggaagagga agtagccaaa aaagctgcag gtgataagaa 180
gaaagcccca gggctggaaa gctctgattc agagagtga tccggagactg aatcttcaga 240
agatgagaag gataagaaga aaggtgtatc tggattgata gaagtggaaa atcctaactg 300
tgttcaaaaa aaaaccaaga aactttctac tttaaatgaa acattaactg atagcaaac 360

```

```

acaattgtca agacgagaaa gagaagaagt tgagaagcag agagcgcaag cacattacca 420
aaagcttcat gcagaagcaa aactgtcaag caagatctgt ttagcaagac ttgcatcatt 480
aaacacagcg tgaagaacag cttaagacc gagttggaaa aaaaaaaaaa aactcgnngg 540
gggccggacc cattcncnt gnngtcgtnt acatcatgcc gcgtttacac gtcgntgga 600
aacctgcgta cccacttate cttgagactc ccttgccgt 639

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<210> 1612

<211> 640

<212> DNA

<213> *Ctenocephalides felis*

<400> 1612

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atttntgttg gttactcga gcagtaagaa tatataaaaa tggctgcagt tggcaaagat 60
ttagaaaaac caacagctga ggtgcctcag gtccatcgca tccgtataac tttaacttca 120
agaaatgtac gttcattgga gaaagtatgt accgatttaa taaatggagc caagaaacaa 180
aagctccgtg tgaagggacc agttcgcag ccaacaaaaa tcttgcgat taccacacgt 240
aaaacacctt gtggtgaagg ttcaaaaact tgggatcgct tccaaatgag aatccacaaa 300
agagtcacg atctgcactc tccatctgaa attgtgaagc aaatcacttc catcagtatt 360
gagccagggt tagaggtga agtaacaatc gctgatgctt aaattttgta aattgatgga 420
aataaatgac aaaacctaaa aaaaaaaaaa aaaactcgag gggggggccg tcccaattcg 480
cctatagtga gtcgtataca attcactggc gcgtttacac gtcgtgctgg gaaaccctgc 540
gtacccactt atcgcttgna cacatccctc tcncantgcg tatangaaag cccncgac 600
gncttncaca gtgccanctg atgggaangc aattgnagct 640

```

<210> 1613

<211> 644

<212> DNA

<213> *Ctenocephalides felis*

<400> 1613

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cactttgagg ttttgatcct taaccatggt gaacggacgc atcccgtccg tcttttcgaa 60
gacatatgta accctcgtc gtccttatga aaaggctcgt ttggaccaag aattgaaaat 120
cattggagaa tatggtctcc gtaacaagag ggaagtatgg cgtgtcaa atcactttggc 180
taaaatccgt aaagctgccc gtgagttgct cacattggac gaaaaggatg gcaaacgtct 240
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aatgaagctc gattacgtgt tgggtttgaa aatagaagat ttcttggaac gtcgtctgca 360
aaccgaagtt ttcaaactgg gattagccaa atcattcacc acgctcgtgt ttgatccgc 420
agagacacat tcgtgttcgc aagcaagttg taatattccc tcttcattgn gcgttgatt 480
acaaaaacac attgacttct ccctcaaate gccttcggtg gtggtcgtca ggacgttaaa 540
gaggaagact tgagaaagga tcagcgtgnt caçtgccgag gaaaagagat aactttcaca 600
tttaatgtta tttttcataa taaacaaatc gcaaaaaaaa aaaa 644

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<210> 1614

<211> 635

<212> DNA

<213> Ctenocephalides felis

<400> 1614

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acagcagcat ttctggtggt tgggtatgga ggggtcagga attagcattc aatctttccc 120
ctgactggca aattgactac gaaacctaca actgggtcaa attggacccc aaatcagaag 180
agaccaagaa attagtcaag caatacttct cctgggaagg tgccgataag aacggacgca 240
agttcaacca aggaaaggtc ttcaaataaa attcaactaa agaattgcc a ttttgttaa 300
tatttcaagt tattgtaatc ttatcctgcc acaatattgt tatttttata gcaaaatgtt 360
tgctgatgat ggcattgtat attaaaattt ctgaaataa attatttaaa atctaanaaa 420
aaaaaaaaa anaaaaaaaaa aaaaaaaaaa ntgggggggg gccgggccc aatcccctta 480
tagggagtgg ntaacattcn ctgccgcgtt tanaacngg gatgggaaac cctgngttcc 540
caattatgcc ttgaacnadc ctttccnan tggnnnanag aaaaggcccn ccntncttcc 600
aaattgccac ntnatgggaa ngaanttgag cttat 635
```

<210> 1615

<211> 641

<212> DNA

<213> Ctenocephalides felis

<400> 1615

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gttttagtat tttttgttat ttcttgactt gatcatctgt tcgataagtt aattctgtaa 60
taatgaaaat tactagatat aagaaagtac atcgaaattt gaacttttat attaacaatt 120
ttggttttca tcagccattt caaatactta ttgacggaac tttctgtttc gatgcgttaa 180
agaatcaatt caatattcaa gatcagttaa agaaatattt tcaagctgag cttaaacttt 240
taactacgca atgtgtaatt gtggagacag aaaatttagg acccaaattg gttggtgcca 300
tgaaaattgt aaagcaattt ggtattcaca aatgcggaca tgaaaaggct ccaattggtg 360
ctagtattg cttactatcg atggtaggca aaagtaatag agacagatat gtcatagcta 420
cccaagatcg tgatctacaa gaaaaaattc gggaaaaacc tgggtgtgcct ctattgtatc 480
tgcatcgtaa agcaccatgt tagagcgct cacaactagc cgtgataagc tctggaatgc 540
tctggagctc aagtccaaca agggagactt gnataanaat aaagagagtg gttatcagaa 600
acacatgaca gaaaggagag aagaaaagaa ggnctatctt t 641
```

<210> 1616

<211> 636

<212> DNA

<213> Ctenocephalides felis

<400> 1616

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gcattatacc gccattggt gttcactgct ccagactctt tgggtgacca catatctggt 60
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cttttgaaac gcaaaaacat catcccagga atcaaagtcg acaaagggtg agttgacttg 180
atgggcagtg agaataatg cactactcaa ggattggatg atttggtgc ccgctgtgca 240
caatacaaaa aggatggatg ccactttgcc aaatggcgtt gtgtattgaa aattggcaag 300
aatacaccaa gctaccaagc tatttttagaa aatgctaag tcttgccag atatgcctca 360
atctgccaat ctcaacgttt ggttcctatt gttgaaccag aggttcttct gatggagatc 420
```

atgacttgga acgccacaaa aagttactga aaccgtttgg ctgtgctaca aagcttgaat 480
gaccaccacg ttatttgga ggacttattg aaccaatat ggtactgtgg caaagtgcc 540
acaaaaccac ccagcagtg aggagttgcc tgggctgntt gagganactg tccactcagt 600
ccggattctt ctnntgagac attgaaaaaa gctatc 636

<210> 1617

<211> 650

<212> DNA

<213> *Ctenocephalides felis*

<400> 1617

aacncttaa ggaaaagcaa gctaagcgca aggtatcccg cgctgaagaa gaaaagcgta 60
tggcccaaag gaaaaggaa gaagaagaac gcagaataag agaaattgaa gaaaagaaac 120
aaagagacat tgaagaaaag cgtcaacgtc tcgaagaagc cgaaaagaaa cgccaggcta 180
tgcttcaagc caccaaggat gccacaaga agggcccaa cttcaccatc accaaaaagg 240
acagcaactt caacatgtct tctgccaaa ttgaaagaaa caagaccaag gaacaattgg 300
aagaggaaaa gaaaatttct ctgtccttcc gtatcaagcc tctggatatc gaatctctta 360
gcgttgaaaa actcagacaa aaggccaatg aactttggga atgcatcgtc aagttggaaa 420
ctgagaaata cgatctggag gaacgcaaaa aacgccagga ctacgatctt aaagaattga 480
aagaaaaggca gaaacacaac tcagacacaa agcattgaga aaggattgat cagagcccta 540
caggaaaatc ccccaaatc aagtcgctca atatgagagc ngtcgcacag acattgagat 600
agaaaaattn ttgaggggct aaactaaaca agagncttga cgttttgccn 650

<210> 1618

<211> 642

<212> DNA

<213> *Ctenocephalides felis*

<400> 1618

gccntgtagc accaacaac ttttcaaat ctacacgtca ttatgaaatt ttcaaattaa 60
aaagtgttca ttaataatta tagtgtatta tataaatatt agttctaate tattgttatt 120
aaaatggttc tcttaggcaa tgatgaattt ttatcaaac ttacaaaaat gtttcaaat 180
gccagaagtt cttcatcggt taccttaact atgaaacgat atgatggaag aactacacct 240
taccctagag aaggcaggcc ccctttgcc aaaccagatg agcatttatg tctgttaaga 300
gccgtacaca aatcaaaaag atttcgactg taattaaatc gaaagacgca gtgaggtttc 360
acatagcata ttgcagttta ttaaaaggta atatggatgg tttgaaaaag atgaaaaaag 420
tcaaaccaaa agtgaaagcg catagaccta tttatttaag ggtgggtttg taagttagca 480
agaagatttc tttcttaaat ttatatgtga tgcgagatga atgctggtca gaaccttate 540
atcttcgata tgctacttaa tcgctaagta ttaaccctta ttaattcntt gatattggat 600
ggatattttg aaatagatnt gtttatttaa aaaaaaaaa cc 642

<210> 1619

<211> 646

<212> DNA

<213> *Ctenocephalides felis*

<400> 1619

gtttcgtaat aattacgtat ttaaaaaaaaa atattttaat aaacatgtac tcattaagaa 60
 tattttcaaa acccggttaat ggtcttgcaa gatttagtag ttcctataac gctacaagac 120
 caaatctaaa attaaatgag aatactaaag taatttgtca aggatttact ggtaaacaag 180
 gaacttttca ttgtaaaca gctatagaat atggcactaa aattggttgg ggagtatcac 240
 caaaaaaaaa ctggaacaat tcatctcgat ttaccagtat tcaaaacagt aaaagaagcc 300
 aaagatgcaa ctgaggctac tgcttctgtt atttatgtac cacctccagg agccgctgat 360
 gcaattctgg aagcaattga agctgaaatg cctctaattg tttgcataac agaaggtgtt 420
 ccacaacatg acatgggttaa agtaaagcat agactattaa ggcaaaacaa aagccgattg 480
 attggcctaa ttnccctggaa tattgacctg actttgcaaa ttggattatg cctggcatgt 540
 cacaacgagg aaaatggaat gttctcggct ggactttgca tatgagnagt aataacacct 600
 agtgggctcg ccaaccttgg tggaataggg agacatttat gnctgt 646

<210> 1620

<211> 643

<212> DNA

<213> *Ctenocephalides felis*

<400> 1620

attgtctgta caatcgccaa attgtggttg atataagaag aattacaatt cttcgccatg 60
 acgtcgaagg tttcccgatga cactctatac gagtgtgtca atgctgtatt ggattattca 120
 aaggaaaaga aaaagaagtt cttggaaact gttgaaatcc aaatcggttt gaaaaactac 180
 gatccccaga aggacaagcg tttcagcggc accgtaaagt atgtttacct gacatgaatt 240
 taatttgagg tttttaaagt caagttatac tggtaacctc aagttttatt ctgataaatc 300
 aggaagccaa agttatcttt ggcggacctg caccaggggt cttaataaaa ttggggaggc 360
 atttgcgcaa ctttttagct ttctattcaa agtcgactac ttgctgcatg aactacttag 420
 tagtaggtaa gccaaagtaac agtcataatt tagaaagtaa agcaatgagg caaatgcctt 480
 ttgatcctgc gggaataagt ttcaccgatt aaattgaact atcaattaac tttctttgtt 540
 gtagatgagc acattcncga caaatgcag ttgtntttgg gagatcacag catngatga 600
 ctaggcacat gtcatgntga tgcgacttga aactaacaga caa 643

<210> 1621

<211> 639

<212> DNA

<213> *Ctenocephalides felis*

<400> 1621

gtnnttttgc ctggattatt taattagaag actgttaagt tttagaagat atgactgtag 60
 ttttaacagtt tatacgtttt ataaatcagc tttcgaaact ttaatttcat aatgatttct 120
 ggcgattttc ctgaggaccc agaaaaggag ctgcagagtt tagaagatga tgttggttcaa 180
 gaaatttctca aaactggcac tgatctgaga caatactcga aacaaataga aaaagaactg 240
 aaagatgtag aaaataaatc tatacaggat tatattaaag aaagccaaaa tatagctagc 300
 ttgcacaatc aaattggggc ttgcgatgac atccttgaaa gaatggaaga tatgttaatg 360
 agttttcaga gtgttttagg taatatcagt tctgaaataa cgtctctaca aaaaaaatct 420
 gttcaatgtc attcaattat caaataggca ggctgtccga ggagatctct cacagttatc 480

gaagatattt ctgtactcaa agctgtaccg gatttggatc ccagtactga gaaagaatta 540
 tactcagtac aatctcatcc caganagttg taaagaccac attcaagagc caacttgcac 600
 gtgtaggtgt cngagaactg aaataagcat gcaaaataa 639

<210> 1622

<211> 635

<212> DNA

<213> Ctenocephalides felis

<400> 1622

aacnatacaa caatcgatac gagacccgaa gtatacgata taatcaatct aaagtctgaa 60
 acagttacaa aaacgggcca tgaaacagga cagtcgcgcg acattgatgt gcccgacaat 120
 ggcgacgatg aaaatcttga catgaaaatc gaagcggacc gactgaaaac attcgaaaga 180
 tggccagtga gcttcataag cccctcggta ctagccaaat cgggattcta ttatatgaaa 240
 gtcgacgaca gagtcagatg cgagttctgc aaagttgaaa ttggcagatg ggaacaaggt 300
 gacgacccct ccgtcgacca ccaacggttg gctcctaatt gtccattcct acgcaacagg 360
 cctgtaggaa acgtgccaat agaccctccg agcacgtccc gagacccgga ccgagctacg 420
 acgtatgcgg cctttgacca tacgtccaac gcgtccagaa aacccaaacc tagcctacct 480
 gtcaccaagg gcctgaatcc cccagtacgc atgagcagca cgcttagatc tactccatgg 540
 ccggcagtta aagacgtcag gagaactagt gaagagcttt ttaccaggca cgaacgacct 600
 tggtcntggg ngnggtaaag atggaccgga tntct 635

<210> 1623

<211> 641

<212> DNA

<213> Ctenocephalides felis

<400> 1623

gaattatttc tttgtggctg taaaagactg cacagctgct ctacttcaat caccggctga 60
 ttaaaaaaaa cagtgctgaa aaatggcttc gaaagtagca gcaaagaaag gccagtgcca 120
 aactggcaaa aaacaacaac ttgcggaaga gggattgaag aaaaagaagg tatctcttaa 180
 atttaccgtc gactgcacca ccccgctcga agacaacatt atggatgtac agaacttcaa 240
 aaaatacttg caagagagga taaaggtcaa cggaaagacc aacaactttg gtaacaacgt 300
 ctcggttgag tgccaaaaaa tgaaagtgtc tgtcatctct gatatcccct tctcgaaaag 360
 gtgccttaaa tacttgacaa agaagtattt gaaaaagaac aacttacgtg attggattcg 420
 tggtgtcgat ggtggcaagg actcctatga attgaggtct tncagatctc atccaagacg 480
 atgatgatga tgaagatgtt gnataatgta aatatcttnt gatataaatn taatattaaa 540
 aaaaaaaaaa aaaaactcag ggggcccgc ccatcgcct ttaggagcga tcaatactgg 600
 ccgcgtttac acgcggttg aaacctgcta ccacttatcn n 641

<210> 1624

<211> 407

<212> DNA

<213> Ctenocephalides felis

<400> 1624

```

tctccatata aaaccttaaa tctttcaaca aaatgatgaa gtagctgctg agcataatct 60
aaaagatcat ttaataacgt gttgctacat aaaattttta tagcaatatg taaagtaaga 120
aaatttttat agaaagtcac ttgaaatatg acatgagatt tcaaaactac tggaccacta 180
tacaataata attgtctaaa ttctgtagct ttccatgggc tcacatattt caatgatcga 240
ggattcctag caaagtcctt ggatatataa atctttaagc tgcataaaaa attggaaaag 300
tcattagttt tagcacatgg caaacgaatt ggaagctcac cttcagcca caaaagcatc 360
aatctcttaa ctgctcctaa acaaatcaaa ttcatatagt caagtgg 407

```

<210> 1625

<211> 345

<212> DNA

<213> *Ctenocephalides felis*

<400> 1625

```

tcatngngca tganntatgt gctttcagcg tgaatttatt cagtgcgaat tatnttcact 60
tacagaaaag attctcaatc ttgattattc taaatttcg attangaaaa ttactcangt 120
agaacttatt acgggngcca caaaatnttc cggttattta agggatgatt gtatattaat 180
aaacgcattn gtcaaagcag agctctcatt catgataagt cgataaaaca taaaaaatg 240
tgagtcgatn tcaaccctca aacttacatc ttttagtgng ggtatggagc tatgcaaagg 300
aaaatctttg caattagatg ttcaaataaa tctcgtttac tgggtg 345

```

<210> 1626

<211> 77

<212> DNA

<213> *Ctenocephalides felis*

<400> 1626

```

cgaacaactt tcgacaatct tattgctccg cttcgcaaca tgattaatgg cagtttttac 60
tttacggtaa gtgtgac 77

```

<210> 1627

<211> 285

<212> DNA

<213> *Ctenocephalides felis*

<400> 1627

```

gtattgaatt tttctttctc attctgaaag tattctatct cgatggaga acgaatgctg 60
cttggcaaaa tcattgatta tattataaat catacgaaca aatttatctc gaatatttat 120
tatagcgtca tattgatcta ataaaagaaa aaaagcagtt caacataaaa atattggaaa 180
aagtgcatac attgcaaaat atccaagtat tgcttataat atcgcaatta tatgtataaa 240
cttcgcaagt cgagtgaac gtttaacgta agcgcggttt gtggt 285

```

<210> 1628

<211> 436

<212> DNA

<213> Ctenocephalides felis

<400> 1628

```

tcgtaattaa taaaattaaa cttaaaaacg ttcaaacgct atcaaataat atatattttg 60
ttctcaagtg aaaattgcct ttttccagca tatttacata aagattcatt aatattagag 120
aaattttaat aacaaaaaat atatcaaata tttgtaggcc aaccgttgag ttacttcctg 180
aaaaagctgc gttgttaaaa agaatacatta attcatcaca acagtcata cgactattag 240
gctctgatta ctggtcaaag aaagcaaata ccttgatttt tttttaata ttttgccttt 300
ttaccttttg ttaaaaaataa agaaatatat tataaaatta tattaataat tttccggcaa 360
agaattgtta ttttgctgta attttacatt ttgtaaggca tttttggcta atattccgat 420
catgtcagag agcaga 436

```

<210> 1629

<211> 103

<212> DNA

<213> Ctenocephalides felis

<400> 1629

```

gagtgtacg atatatactt tcattgtatt tatttatctg gaatctcggc acgttaatat 60
cgtctcaaat tgagtagatt tccgttgcta tctttgataa atg 103

```

<210> 1630

<211> 436

<212> DNA

<213> Ctenocephalides felis

<400> 1630

```

ggctttttcaa agcgctttga atatcttgat atcaaaaata atatctgtag gtgtatctac 60
ttgtgcatca gcaaaatatt ttctagagta ttttagtaaa caaatgtggg cgacgtaatt 120
ttcttggatt attaattcag atctgtttca ttttttagat tttttattat tacaatgaga 180
taagtgattt gaatactttg ttataaattt ctataacctc attaaattta cgaatatttc 240
ctcaatcaac atgataaaac tcaccactgg atatctaate tttttgttct aactttatgc 300
atatttgcata tagtaattac taactgttta ttattaaaga aatagatagt aatttcatct 360
tgagaaaatga aaaataactt cgtgataaat aattctccag atatttccac ttggaaacat 420
tttggtctct tcaagt 436

```

<210> 1631

<211> 281

<212> DNA

<213> Ctenocephalides felis

<400> 1631

```

aatngngact ttnttgnttc taaaaatctg ataaaatttt aaataacttg aagattaaaa 60

```

```

agcttttnaa aattcaacat acaaaaaaat acatgcaaaa gcaaataac aattttaaaa 120
aacctgcaan tgtgggncaa canactnat tcaacattca ccctgatctt tcattctttg 180
atTTTTtata agctacataa antgccaatt ctttcttttc tttgntgata ttacgagtat 240
cgtattccaa tctgtgcatt attatgcgtt caacaagtcg t 281

```

<210> 1632

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1632

```

gttgccggtt gtgaggttat cgtgtgcctt gaatcgctcg aatctaagct ccatcggtgct 60
aattatttcg ataactccca ccccgactgg gacatctcga gagtcgggaa gcccctggca 120
aaggctacgg cgattttgtt taaatcagtg tctacagttg aacgggtcca cttggacggg 180
aaacagtggt catacgagat tattatatat ttaaaattga ttgaaacagt gacaaagtga 240
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atggctgaaa tgaccgccag cacgcgcttc aaacaataac accaatcatt ctccaccaca 360
agtgaacaa ttgtgaaata aaacttgatt ttattccaat catataaact ttaaatacag 420
tgcaactaat caaaataatt tgcgggcaat tgtaaaatac ctaagtgtcg ataagtctat 480
atgtgatcag gctaaagcct tgaaaaagaa tcttagtagg aatattagta ttcgtattaa 540
ttaattaat 549

```

<210> 1633

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1633

```

gctactccta accaaaaaac acatttttga taagttcggt agtggcttct gtcggatttt 60
aatttttaat tcaatcttac atttgcaggg tcaataaatt taactatttt tatttaatac 120
agattctaac gataatcttt tattttgtaa tatgtctgaa gaaggaacaa cgagaagaac 180
tacgaggtcg cttgccaggc ggctgagtag tgattcaata tcgcctccag ctgcagggac 240
tcttggtgcaa aaagcgaggg cttcaagagt tacgggggtg ccgtctattg cagaaactaa 300
accgaaagca gttagcactc gtaaatcccg aagattaagt actgacttaa atttagaaga 360
acctggaagc agaccatcaa cacctatatc aactgaaagg cgtcgttctc gccgactaag 420
tattgcttag atgaacaacg cccacaatct gtatcaactc tcccattggg ggagttatac 480
aagaagagga agacatcaat attttagcaa tgaaagatga tataaataat aaatccggtg 540
tgngtgtgn 549

```

<210> 1634

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1634

```

agttacagct cctgttaatg ctttagctga aacaagtcaa acttcatcaa tatttggtgg 60
tgctaaacca cgggaagaac ccactgagaa ataagttatc aagttttaac attaattatt 120
aaccaccata tagaatacca tcttgaatca tgtaataatt tttcgattaa aaattctgca 180
aaactcataa caggcgctga taatcttact cttgcaataa attctttaac tgatatataa 240
aatgtatcaa gttttgtaaa agaaaaatca ataattattg atttacagaa taaaatattt 300
attttgttta aaaattgact aatactttgt aataatatgt aattcttata tatatagatt 360
aaagagttgt tgtagtgctc ttttgtttcc aaatagtttt acactaatat atttaataca 420
aaacgcttta caaattttac aataattgat gaaaactatt tgagatttta ttctcgaagt 480
acaacttatg tattaanaaa ngngcnnntn gnnnnntnnn cctngggggg gggccggccc 540
cattcnccc

```

<210> 1635

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1635

```

agcntaaata acaagactga cagtttagtt ttaacaattc atcatgggag atggaagaga 60
tattgaacga cagccattga ttcaaatga tggaaactgga agccttagga atcaaggatc 120
ctatacgga ggttctcaaa ccacgacggt ttccctata ggtcctgatg agttgccacc 180
gtcttaccag ggaagttcgg ccagtggcgt gcccatggtc acttgcaggg tgtgtcaggc 240
catggctgat atttcaggca aacgcgaaca gcatgtcgtc aaatgcaatc agtgcaatga 300
agccacacct atccgcaatg caccaccagg caagaagtac gttcgatgtc catgcaactg 360
tttattgatt tgcaaaagtt catctcaaag gatagcttgt ccgagaccaa attgcaaacg 420
cataataaat ttagcaccta gtctgtgac accacctgtc ctcacggttg aaattttcgt 480
gccaggaatg tgcagggttt gtgtgctatt gtgggganag tttttttcaa caccctaaca 540
atgcctcgc

```

<210> 1636

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1636

```

gctaataatg tgacagccat aaatattgta gattaatgta gaataatttg tattgagatt 60
tagattttgt agcactactag aatgttatgt gtgcttgaat aatgcaagtg agggaaacaa 120
taatttggtc tgtttttata atacatttta gataataatt attggtgaac tcaatcttgc 180
atatacgccg ctaatgaatt aaaccagcag gcatataatt tttgtactta aatattttata 240
taactaaaac tgatacgggt tacgaaaaac acataactat attatttatg tttctagacc 300
cgcatgaatt aaaacgaaaa cggcaaaaaa ttgacgggga tccaaaacat cttttatggc 360
aactgcaggg tcaaaatcct tctacgagta agtcattttc aacttttatt ttttttatca 420
gcaaatcaaa cagggttcaa tgtcagggtg cgggtgaatca cggggtggat gaatataaaa 480
actcatatca tacgcttatt acatataaca ctaccatttt catattatca gtaattttct 540
aggagnata

```

<210> 1637
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1637
 atggcatcct aaacaatata ataataataat aataatgaat ggcatcttctc gctaacagat 60
 attttaatat agcgatttga atagttttaa tttatttgaa tattgttcag agtgatactt 120
 tttatatattg ctgtaataaa aatgattatt atgataactt atattatgaa agggaaaata 180
 tattttaaact ttttaattgat taccgaagag gatattgatt tgtatatatc tacttgaata 240
 tgaatttgaa cagttaacat tatcttcaaa tttttaatat aattttaaact tattgggtac 300
 tagcaaaaac gtcaagatgt ctaattacgt gttgaaagtc aaatcaaaag aaggacagca 360
 tat'tttaaga gatctcaaat cttccatgac tctgggcgat cttttactga aactttcatg 420
 ttgacatcga tatctaaacc aatttgcaaa ttttatcggg ttttccgcct aaagcattag 480
 atttatctga tnagagtaag actttaaagg ngagtgattt nattcaggag atctgtattg 540
 tgaaaaaat 549

<210> 1638
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1638
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 gtttggcatc agctcagttc cagaatggac gcatcttaga accaccagta cctgcactct 120
 gcgccc aaag gacgatacac gaacgtagcc cagacggcaa aggatacttc ttctcgtggc 180
 gtgaccacaca attggctggt gttgaggaag attggttggg cgtccgcaac ttctgtcgcc 240
 aacgttgcat ggacagtgtc agtttagaaa ccagtgccga aaatgaatgg atcaagcaaa 300
 gaattgtcaa tggaaatgtc aaatacatct ggaccagcgg tcgtctatgt gacttcaagg 360
 gttgtgaccg accagattta caacctgttt ccgtaaattg tggttctgga ccgctgaatt 420
 gcaaaaactt gcccaaccac agacagacaa caaaacgact ggtctgaagg agtggtattg 480
 tcttcctcac cagatacaag aattgaacaa ggtggacaac cgaaactgtt tgcagtttga 540
 cactttaca 549

<210> 1639
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1639
 ccccttcccc ccttccccac aaacatcacg tgtatttttta gttatgaaaa aaaattgtaa 60
 ttattttgat ttttgattt ttttaaaaaa aaattctctc tccctaaaaa catcacctga 120
 ttaatggacg catcctatct gtattcctta tataaaaaata aaaaatgtga aatttagata 180
 tactgaatga ttactcgtac caagagtcga aacatataaa taaataatat aaaaatcaat 240
 ttaccatttt caaatttgat gaattgggtg caaactatac caaattcctc aattccaatc 300
 atattcatat acaaaaatac ctatcaaatt ttccgattca tttaaaaccg attacaatca 360

attccattag gcaccagtat ttataaataa aattttgcgc atatgtgtga acatatattc 420
 attattttat tagtctgaga aatagatggt gactattcga gagagcagcg aaatgtcgat 480
 atttgccacc tcatcagatg ttggataacc aaccgntaat aaccgatttt tagggggatg 540
 ttaangcct 549

<210> 1640

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1640

tatttttggg tcttttatgt tttacaaaaa ggatttatcg ttttaagttt aaataatgac 60
 aatctttacaa attaatctaa acaaaaatgt aacaatattg ctttaattaa ataattcggt 120
 tattgttata ttgaatccac aaatatgaat tgttgattat tagcatcggt tatttttgggt 180
 gtaaaataact tatgcaaagc agagttgatc ttataaaaaca tctaatactt attttattat 240
 acatagtgtg atacttgttt ttatttttaa tacattacaa actaaatgta gttcatctat 300
 gatttacatg aaaaaaaatt agttattatt tgttagtggt taagacattt tacgcaatat 360
 ggcagtaaat aaatgcgcac actaaaaaatt attattaata tttttatagg aacgaaagtc 420
 tataattcta tacactacat cgctttgtgc aattgaaata atatttttca ttatattgna 480
 tgaatttagt atatcaaaac atttaaaatg gttatatgta tacaggtnca ttattgtaat 540
 aatgagaag 549

<210> 1641

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1641

gaacagttgg ataaaaataa aaattgtgaa ctaaaattta ttttcaaatt tcattaattt 60
 ttaacaaacc cttttcgtta atattgacgg aacctgccta agtgaagcaa aggacgatat 120
 cgggtgtcgt tggtagtgta gtgaaactat aaaattgtga ataaaactta aaacatcacc 180
 aaaaataatc cacacacttg cagtaaacaa attattattt gtctctatag acagaaccaa 240
 atagaagaaa aactcagctg ccaaatcaag attgacataa ctgtcaatta tttttatggt 300
 gatcatttat taatatatca attttgactt tcatcgattc tatctcggcc ccccttccca 360
 ccatgacgct ttcggccaac agcaatgcta ccaatcgctt cgggtcgtag cagggacgta 420
 gcctcaatta gccgccgtgc gaatacaggg cggnccagag gatatgcgtg cgcaagcagt 480
 caaacggttg aaaaatcaaag tgacggtgca agagacagct gnagaatcta ttgacagaga 540
 tacgcgcat 549

<210> 1642

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1642

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attagacttg ccacatctaa ataataataa aattagtaaa ataatttgta aatattttatt 60
taaaaaataa aattaggatt ttttattaat atgaaataat aaataatcaa ataaatttag 120
tgtaataaat aaaagtgtgc atgtgtcatt cttgattaat attcaacgca attaaagatc 180
aattttgaat gtatcctctc aaaaattggt gtatgaggag atgactagca aattttttat 240
aaatgtcgtg gataaatgag tttcgaaaat ttatttttga ttttataaga actgttttcg 300
aattataata gaggggaagag ctagaaatcc acatatcaaa attttaaatg gacctgttat 360
agaagaaaat gaaactcaac aaaggaacca tgaaaaaacc ngagttctct acaattgccc 420
ctgtgtcgaa gaagacgatg atcgagtata tctaatttga atcagatcta cacaaatgag 480
tggccatcct gcccatttta tagactcaga caagcggagg gcccttggan ggcagatgaa 540
attcccant 549

```

<210> 1643

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1643

```

acatcaatgc aagagaagac accaacaaaa aataacgaat ataaatcgaa atttgcgaaa 60
ttaaaaattc gtgatgatca gataagttac aatattttgc aattctttta aagtaaatat 120
ccaaagtttt aacattataa aattaaaaaa aaaaaccaat ggggaatttg gnttaaccaa 180
tttttgnacc tnnaaagnaa ttnttttttt tagnaagnacc nntnnnaaat tttgnttggg 240
nccaantaaa aaaaccgnng ncaggnatnt nttttttcnt acctnntgga tnnnttttac 300
ctnttacnnt ggtttttaac ntatttttaa annnnnttgn tttcngaggg gttannttta 360
nnaaatgnct taaaaatttt aatnttttcn tttnnaggnt tttttggggg aacntttttt 420
aaaacctcnt tnttananta ttcnttgga cccgtggnaa ncatttgggg ttantantta 480
aaggatatng gnnngggttt 500

```

<210> 1644

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1644

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acacatagca aattaagtct tcgcttggtt ttacatgaaa attgccaaaa aaagaatata 60
ttcattatag gaagtattta ttcaagtatt ttttgatgac tgttctagct gttcatcaat 120
tcatacttaa aatagttacc ctttttaatt tttacagtat ttaaatttaa tagttggtat 180
agtattttat aaattttaat ttgaagcatt cttttatagg tttggaaatt atatttttac 240
aaaaaaaaat aaccctgcca attgatttta aacaaaacca taaaaaacta ggtgctatag 300
taaacagcat ttgatttgat gtatacattg cattgaaatg agtggagaag caagatgaaa 360
gcctatccat taatgactta agacttttta gaaatgtttt atatatacat atgtatgcta 420
gatattttaga tgggtgtcttg taattgaatt agattttaca ggaaccaaatt gttctacatt 480
aaaactaaat ttatctctat 500

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<210> 1645

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1645

```

acagtttttt ttttcctcaa acacgagcta ttggaaaaca aaattaatta agtttagttg 60
aaagtcaa at tgacccatat atatatatat ctagttttga ttttgtctt acagattatg 120
gttgtcgatt tatatatgtt tttattgaat acttgtgatg tttattattg atttcttttt 180
gtttgttgtt catcaacgtt ctttgttaac aaatggggga atagctagtt aggaacccaa 240
gacgtcatat atctggccga aagcacaatt actgaaggca cacaccaca actacagtct 300
acgtcaa at tcatattaag taaaccaggc tctggacgtg cggccaacaa ttatggatac 360
cgctacgggg acctcaaaca tcgttgga aa gtagcaacaa tttttagagc cgaggcgagg 420
tctggtgtga cagggggggtg tgtgacgata atcataatta tcgcgtattg ataattattg 480
tcgctgatg tcgcaacccc 500

```

<210> 1646

<211> 277

<212> DNA

<213> Ctenocephalides felis

<400> 1646

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actgaatgtt acaaattttt acttgatag aaggagcaat tttcgttgcc ctgacgggc 60
gtttcgccag aatttaataa ttgtttattt tattgcattt aatcctcttt ttttaaaatg 120
atgcatatta taataatata cttttaaaatt attattgata caactttttt gcaaaccaaa 180
ataggtatga tcttttaata atttttatcc catttaaaaa aaattctatt caacaaatat 240
ctttttttca atgcaactag gattttatat gttaagt 277

```

<210> 1647

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1647

```

acttaagtaa tatgttagta aatttatatt aggaattatg acaaattttg ttatattaga 60
acttatatat attaggcttt acaaaaatgt ttttggatg aactatttta tctattagat 120
ttacttaaac attatagaga taggaaaaaa tctcttaaac cattttgcta aaactttgag 180
aacgaaaaaa taaaacatct acaagacatc aagtcttttc ttttaaaaga gtaacactcg 240
aaaagggagc gttcattctt agacaaaaag aactacaaac atattatatt ttataatata 300
gaattattaa tagtagtatt tttttactaa tataaatatg ttttaattca gggtattttg 360
actcgtcatc ctatcaaatt agtcaagaaa ataacgtcaa cagaagtcag aaaagaacca 420
aaaaattttt ctgctcaagt gcaaaaagggt ctacattat tcacgtggtt gcaacaccac 480
ataaaatagc aatgtggcaa 500

```

<210> 1648

<211> 331

<212> DNA

<213> Ctenocephalides felis

<400> 1648

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acagtagatt gttttgaaat cggtgccgtc ccgtaagtgt taaatatatg taagcaaaat 60
gattttactc accaatacat cataccccat gcaaaaatac ttttatagag taatgcaaca 120
cgcttacctg aaacaaaata aaaattatta aatacattgc aaagaaatat ataaggcat 180
gaagaaaaat tttatgtaac gcaataatta tatgtagtag cagtcttaca aaaatatgta 240
ttaactaaca atatcaatag acaattatit aggggccaat tctgctgtaa aatagaccaa 300
tgtaagtaa gggcttctca tacaaaattg t 331
```

<210> 1649

<211> 113

<212> DNA

<213> Ctenocephalides felis

<400> 1649

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acgagttaat aaacnttnaa atataataag taacatttta aagntgcac ttagtgaaaa 60
tctttacat gttccttgaa aataataaaa caaantaaac atttggtcca tgt 113
```

<210> 1650

<211> 474

<212> DNA

<213> Ctenocephalides felis

<400> 1650

```
acaggaagtt ccagcaatit gccttaaggc acgatgccat acgccactag tttttgtag 60
ttgtatgttt aattatgcat taatcaaata attttttcat agttcaaac cagacggttt 120
ttttttaaaa aaaaaaaga attataaaaa aatatgttca atgtgacagc cagttgtgtt 180
catgcaaggc gacggaaaga gactcgtgt cgagcaagcg atttgccgc tacacatc 240
agtttggctt gacgagtatt ttacngngc ccgcctatag tgtgttaata tgatgcaatt 300
cagtcattat caacacgaga cagtctaata aaatttattt aatttttagct attatatcaa 360
ttaaaaaata ctatacgtct ctatttattt ttgttccggt tactagaaac tggatgaaat 420
atttagtcat acttttaaga agtaacactt ccaatatgga cgaatttttg ggg 474
```

<210> 1651

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1651

```
acatacacac agatatacat acatacctac acnaacacac acacatacat catttttttc 60
ttaggtatgc caaaatgttc agagggcttt gaaacgtaaa gatatgtaaa aaatacattt 120
tcattttgtt gcgaacatac cctactggaa gtaataaaaa atgcntgaat caagcacagt 180
aatgggaaaa aattaactaa aaggttagtt atcgtataac taaattaaat caaagggtg 240
ntttattatt tacagtttct caactacaaa ctatataagt caaactcaaa aaactataaa 300
```

tacttattcc aagaaattaa taaactttta attcaatgaa taataaaaagc atttccctat 360
 tattngcttc aataattatt ataaactatt aaaaccattt atacattgtt tataacttac 420
 aagaaagcan cttataaacc ttgaaatctc taataaaca ctttngcaag actttntaat 480
 ccatcaaaaa atacttgaca 500

<210> 1652

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1652

acatgctaag tatcaaggat gacgctgtat gtgaaaaaag tgagtgtttt ccgctttcct 60
 gttgaaatct ttcttcaatt ttctttgcta caaacttcac ggagttcgag acctttccaa 120
 cgaatgcaaa agattcgtgc gttctggagt tataatcgta ggaaggaaaa cccgtcttat 180
 ttttatataa tagataatat atactatatt attatagtaa tcgggcgtaa catcaataaa 240
 aaacatgaat tttagtgtta aattagaata ttaactaatt ttctgactga atgagggcta 300
 ngaatggagg caacatatgg atgtgaaaaa actagtatga gagtttttag aattttttta 360
 aaattcatat gcttcacta gcatagcctt cattcattgg caatcaattt aactgtaaaa 420
 attaaaaata aataattttt tattaacatt attgtttttt tatgaaactc cttacatatt 480
 atttatttag ttttaatttt 500

<210> 1653

<211> 226

<212> DNA

<213> Ctenocephalides felis

<400> 1653

acttaaaaat aattttctata aactgtttta gattggaaac ttatgcacta aattaaaaat 60
 attgnattga taataagggtg tgattgcgat tttaataata aacctcactt aacctagaat 120
 taagtttata cattatacac atcagacttg cttacagca actattaaaa ataatcaaa 180
 tatggtatat caaaaatgat atcaaagtaa attggcatat caaagt 226

<210> 1654

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1654

acattttaaa ttaaatctct aaatgtatat tttttattaa tattatttgn tatctatcat 60
 atgaatgaat tattcgtaat tgcatatac gcttaactat ttctgtttga tcaagcttga 120
 ttttaaaatt ttgagttatt atatttctgt gttcattcac tacatatgta ttatagtttc 180
 tctacacttg tctgcaaaaat cattcattaa attataactc atatccaata caaatgatat 240
 gtttgtattt aaagaactga catctcgaaa cgcaaaaatt taccaagatg accaataata 300
 tttctttcat tttcttatta tgaagaatca ttatttgtgg taatttaatt ttgtatgata 360
 accattgtga tcaatgctgt aacatttgtt aacaattaaa ttatatagtt tatgttgtat 420

acatttagac ctgtaagaag cgatatttaa tattattttt tataatttgt taatcttaca 480
tatatagata aatattatgt 500

<210> 1655

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1655

acattctgaa caaactagat aaaatgaaaa tcatgatatc agttttattc ttgttcttag 60
ttttttacgt aggatttaac atatcaactt ctattttaat tttccaagtt tcgtctttta 120
ataaaagtttg ttatcggcaa acacaagttt taaagagaat tattccggtt gtctattttt 180
actagaatac ttttttagtg taatttgaag tagtaagtag tatcttgga aaagataaat 240
ttaacgtcct ttgtaatcga catattaata tcgaataaat ttgatactga tgaagtatta 300
tttgtagca gaattttcca ataattagtt taccataatt tattaactga taatgcacac 360
aattttttta aaatatactt tttaaaatta agtcttcaa ttatttcaaa atagtccaat 420
actcaatcta ataataaatt taactgttat tcaactatcct gccacgattt ttaaattagg 480
cttcgttaaa ttcaattttg 500

<210> 1656

<211> 343

<212> DNA

<213> Ctenocephalides felis

<400> 1656

actaattttt ttaaacattt ttttaccctc tggcaaatat ttccctaact gtaatgtaa 60
aattgttcac aaatggnaat tngcctgtca ttcattgtcg aacgttttaa tngcatgttt 120
gcatttgcaa cagcagaatc ataattctct tcttgataat ttatttntat gtcattttta 180
gtcatgaaaa tgaaatatat aatttgtaaa taaatactca gttcatacac gataatgtaa 240
ttataggtag tgttttaaaaa aattagcgac tgtgaacaag atatcaaaaa aatacacatt 300
tatttatttc actatccaaa gttttcttac agtctctccc tgt 343

<210> 1657

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1657

tcaantntga actgcantng ntaactgnnt.ttnatgatcn antcnattga aaanaaangt 60
nnctaannntn aaangggcnc gacgncnncct gtcttcncat tatgtncat gtcacatcagt 120
ttataagtta aagtgtgnca cctctcntnt atagnaaata natgatgact attgcgaaag 180
aagtctagac tataaaaatt ctaacatata tatttaggta nttgatccat anactagggg 240
gngaaagacg tttaanatac atggnntcca naatagtcaa catgatttaa ccacattttg 300
tatgttataa gtatgcaagc ntgttggtcn tgagatcgcg accacgacct angtgatang 360
canctcngtn gcgaccactc taancngaatt tttgcngatn tacatcacac tggcggcgct 420

cgagcatgca tntagagggc caattncaac tatagtgagt gggaaaacna tgcagttgcc 480
cnacttntna cttgcatgac 500

<210> 1658

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1658

actataccgg tgcttaccgt ggcaagatga acgtcccaaa acgtcgtga tcaaattaat 60
agtcctcgtg gctaatttat ttattctgga aaatcgtgcg atttgttgt gttcacaaaa 120
tttccgttta ccaaattttc ctctataatg ttccgagtggt tggccgccac ctcgatttgg 180
ttactattgg catgggcagc tatgctaata tttttccttc cgttgatggt cgttggtgta 240
gcagttttgc cgggactgcc attactgatt attcgaaggg tgtgctacgt gcccttcgat 300
tcgattttaa tttgatttct tcaattaaaa aatcaatttt aaataaggca gtgttctttg 360
aaatagttat ttaatcgtgt catttcatag tagttgtgat attatatttt taaacatata 420
tcttctaate attgataagt atgatattta tacatagtct tacatattaa ggtataatat 480
ataatagata tagtcgtatt 500

<210> 1659

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1659

actataattt caattcaatg catttttgggt nagccaaaaa ttatatgaac catttgtatg 60
tttgtaatt caacagttat tcgctctgga ttctttaaat tcgaagtgtt actatactga 120
tgatattaca aatctactgc aattaaagat tatttattca ttgcaatatt agtatatagt 180
aatattttatt agctctttga caaatttgc tatcaaaaata attaaacctt ttcaataaat 240
ttttataaga tacatagtgt ttatctcctc tacttaataa aattacatca ttatttgaat 300
taagtgggtt atataagtgc aattttactt atttacaata tttttctttg aactcattaa 360
aataaactca atctctaatt ttatgagttg tccatttagt atgaataaat atgaacagtt 420
tcttgaaggt ttttgatctc ggccatacca tttttcata tattgtctat atacattttt 480
tacaatgact atatatcata 500

<210> 1660

<211> 343

<212> DNA

<213> *Ctenocephalides felis*

<400> 1660

actagattat cctgatactt ttgcgccatt cctttcgcca tagaactagc aactaatttc 60
tcaccgggaa tagcaaaactg atgtgaagca ccacgaagtt tagattcttt aacaacttgc 120
tcattttcta gttcctgcag tttattataa tattcttcgc ccttcttact tttgactggt 180
tgctgccatt ccgtttccgc ttgcttaatt acttttgggc tcaaatgttc tggatttaat 240

tcaattcctc cttgttgagc caataatgct tgtctttctt cgaaggctct ctctaattca 300
gttcctacac gttctttttg atattgtgtt aggtcgtagt cgt 343

<210> 1661

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1661

ncttgtgcaa aagcaacatt ttgacattat angtnnggan attgaactaa attnaattat 60
aaaantatna ntnantggta aactnacant attgaacatg ttaatnttat attccatgtt 120
tagcaaagaa gctcctaatt taaaacaata annnnatncn tgcgcnatca anctttcttg 180
gttgngcatg aagtgtgatc attaaattat aagtattctc aagtaagatc tgaaaactat 240
atcaaaaatg tataattaaa ctaaaaanatt atatttatta tataaatntt cctatngcga 300
cantanncan tttttaatnt naatgagnaa tgtatnaagg tgagnntntg ctctgtgcga 360
tgntatnggn cnttnagana attnaagaat tatggtaant attntngaatt ggattgcntt 420
atngnttctt aaatgncctc tggttagttt aaancttgta tgantngaga cacagcaaca 480
actgttgctg nntttatatt 500

<210> 1662

<211> 334

<212> DNA

<213> Ctenocephalides felis

<400> 1662

acactgcaaa atttcaaatg cgaatatctc gaaaactaat agaccaagtg tcataaaatt 60
ttcacagaat tttactaaca ctattgtgca taaacactat gagtttaatc gaaatccgag 120
atgataagac tttttcatca aaaaattttt agngtatttg atcagattca tttntnantt 180
tccggcggtt ttaaccagga aagcatagca gtattaaaat aattattata tggcggtata 240
tctcgctata tgacctacaa ttaatttcca attnggaccc tntatctgcc ccacacgccg 300
agcaatcgtc aaaaaagtga gaattttttt tggt 334

<210> 1663

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1663

acttaaacca agaaaaaaaa aaagctttta gcctggcggtt gacatataga gaccataaga 60
tcgcaacacg agaacgatgt ctggacattt tcgaactcac atatactagc caccgcgtt 120
gtggcgctt aaaaacgtag ggatgaaatg tttacacaaa aaaagagaca taaatattat 180
cttgctgcgt tacttaaagc tctatgattt gaaatcgaat tctaagagaa aaggacttca 240
acgatattct acccttgcaa tatgatattt taaaataact ttctttaaaa tatttacgac 300
tatatatata aaaaaaaaaa aataaactct actcacaaga acgatttcca tgaaacaaca 360
cttaactgta taacataact taatgtatct ggcaatcatt atagattttt aaaaaaaaaa 420

aaaaacaaat tattttatgt attggtgttt acgaaaatga ttatgaataa cacaatacac 480
 taaacaattt caataatgtc 500

<210> 1664

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1664

accgtcaatc actttataag tcctttatat acttgaatat aaaaatgaag caaattgcta 60
 ataaaccttt cctcaaaaac atttgatgaa gagatttcga cttctcaatt tagcttcaca 120
 attcttcaaa tagagagtga aattacactg tagagactaa aacagaaacg aggcttttca 180
 tattttcacg aaacaatgat tacatattgt agactcatgt tcggtaacat ctattctgca 240
 taatcatgcg attagttggt ggacacagac tgtagatgtc ctatactttc taagaatttt 300
 tatcgaaagt cacaactag ttacattctt gaccaacaaa tatattacgg gcaggaacgt 360
 gaactaatta ttgatctgat caatagcttt tccctaatac ggtgaacgtg ccctattaac 420
 tttatactgt aatcttgtaa tgctcttact cggccataaa ataatgatgt ggaaacccaa 480
 gactaaagcc taagcagggtg 500

<210> 1665

<211> 433

<212> DNA

<213> *Ctenocephalides felis*

<400> 1665

acacaacata ttaagctaag gaactcattg nnaaattgac ntatntatat tattnataac 60
 taaaagtctg ggagtttaca tatattaatt attttataac agcttgctta aanttgactc 120
 gttngctatg caataantac ctaattgcaa tttaaagttt agatctcgaa cttcacanat 180
 cntcctatta aaagntgttt acagnanttg gttnnngatc nantgnntgg caaantaata 240
 nttnaatatn tgtatgnnag atttaatctc cantcatnat cttcatgnat tcatcgaaan 300
 cgacagttcc tgatccnnaa gtatngattt ncgcatgat nccntccang tcggacgagc 360
 tgagtntgcg ncgagcgctc ccaagatctc cttcagccgt gctggntgtg angnaaccgc 420
 nccttcgtgg cgt 433

<210> 1666

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1666

acttgtgcaa aagcaacatt ttgacattat aggtttggaa attgaactaa attcaattat 60
 aaaaatatta ttaattggta aacttacaat attgaacatg ttaattttat attccatggt 120
 tagcaaagaa gctactaatt taaaacaata aataaatata tgcgcaatca atctcttttg 180
 gttgtgcatg aagtgtgatc attaaattat aagtattctc aagtaagatc tgaaaactat 240
 atcaaaaatg tataattaaa ctaaaaatat atatttatta tataaatatt tactatagcg 300

acaataaaca atttttaata taaatgagta atgtattaag ttgagttttg ctcgtgcgaa 360
 tgtttattgt ttatagagat aattaaagaa ttatgttaat gaaaatgaaa tgtaattgaa 420
 tattgcatta aataaattaa ctctgggtta gtttaaaatt atgtatgatt tgagacacag 480
 caacaactgt gctgcattat 500

<210> 1667

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1667

actatacttt gacaaatagt ttatcatgta atntactaga ttaggatttc aaataattta 60
 taaactggat atacttctac tnccaatatt tgaatatgat atgaatgcat gtgtgtatgt 120
 atacttattg catattaaga tgcattaaca tagaattaaa tctcttggtt acgtatatnt 180
 aggatatcat acataactcaa aatagtgata ttacaataa aaatataatt ttcttaaacc 240
 tatattaaaa tataaataaa tagtaacnac nttaaaataa cctggccatn attnnnagan 300
 ttgntnttcc ttttatnggc cctattann nnatncttt caaanttggg nnnngnaatn 360
 cnnngcncna cttttatnaa nanantaann ttatgggcnn aanttanncc nnntggcna 420
 tnngtcnant naatattcca ngngatagc atgttgggcn ngcctantca gcaaattngc 480
 ctanatgggc atgttntaga 500

<210> 1668

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1668

acatacacta agtcatatga aatctcggca agcgttaaaa gcacaatact gtcagttctt 60
 ttgaatttct aaatttttaa actttacttc gagatggacg aaaaatgttc accatccaat 120
 ggccttaggc aataagaaaa attccaactc ttttctaact tgtttgccat catctctctt 180
 cctttcaata agaatggaaa agttataaat ttagcgtgtt tttgaatatg gaatagtgat 240
 aaaaagtctg cattttgggtg atatagtgtc tttgcgtata actgcgtttt gcttttgaaa 300
 aagtagttct acaagttaat agtttacatt ttagattgaa ccggttcac agcgtataac 360
 tagtaaactc tgaataattt tctgggctga aaattttaat gtaacaaatc gacaattttt 420
 tagctaacca tgaattttga attttgaata attaaagtta ttttaatcgt cacgtncgcg 480
 cccactcgct tttttggcca 500

<210> 1669

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1669

catgtcaata gttagcatat gtattaagaa tttacataa taattnaaac atcaatnaaa 60
 acaatataaa taaataaata attttngtat atcaataaca aatttcttaa ataactaatc 120

```

acattttataa ccagtcatt gttccttata tttatttttc aatatatcac tcgtctccaa 180
ttataaaact ttgactagac ctgataaaat attttataca taaaaaact ttgnttatat 240
caccaatagt taaacttta aataatttca taatcacaa tgctatgata tttaaattaga 300
agcattttaat ttatataaac atattaatag taaatttatt atgaaacttg gttaaagttaa 360
taaatacaca ttaataaaat tcttttccaa tatatgcttt tttcttcgaa atgcctttcg 420
atgaatatac attctaagct tctttccaat tcgtatccgt ccattctatc ctctgacaca 480
aaattaattt cattccntc 500

```

<210> 1670

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1670

```

ncaaactgga ccatttttca cgtgacggtg cattgtgggt ttttggtatt aattttgttc 60
ataaataaca tttcttggat ttgtcaaaaa acaattcggg gtaattgttc ttatatgcaa 120
gtttcaatta ttttatattt tgggttatat accaattaag taaaatccac tatttttttc 180
atgtatctct accatttatt attttatatc cttgtagta attacgcaga gcaatgtaaa 240
taattcagat attatttatt cattaaaaca tgacagattt attctcaaga taaattctcg 300
acggagttgt atattttcca ctataaaagc tgtaaaaca ttgtaaaaca ttcattattt 360
acctagaact actgctcata ttctatttaa aaataaatcg taagattatg ttcatttgca 420
taataaatat tagcaaagtt tatagtatta taatngtaaa ttatttgcac aaaggngttt 480
ataagtaatt agttttgtga 500

```

<210> 1671

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1671

```

acaataagga aaattttgca agcgaaagtt tttggataaa ctgaaatatac attatgttaa 60
tgtttcatac actctacaac ttattgatatt ttttttctt tttttgaaaa tgatttttag 120
agtttgagtt ctgaatattt cgaaaaattt agaacacttc aaaagttttg aaatattaat 180
gatgaatgtg gcatgttctg taaataattc aacaaactaa atattttata ctagattcta 240
gttggataaa aaataattcc tgatttataa tatcattacc aaaatttctc taaacaattt 300
accgtaggca aaattttggt agaattattg tgttttttaa gnaatctcaa aanggnataa 360
attcccaaaa attcccattn ttggggantt ntntcttaa tnttggaana aaaatggngg 420
tttntttcca anatctttna aaaggggtta attantccc aanngggttt tgngaataaa 480
nattcaaaat tttgnccttt 500

```

<210> 1672

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1672

```

actaattgat tattgttatt ctgcaagata tgatgttccg aattattact gttccaatta 60
attctttttac gaagtataac tcatatttat ttttacta acatacttgt tactctctag 120
acatgtttttt gtttgcgttt tgcgtattaa ttacttgtgt gttttgtttc cactgaagaa 180
gagtcaaatt ggaactcgaa ccgtatggat ctaataaatg tattttaaga aacatctctt 240
agttttcttt ctattcatta tctggataga tgactgttaa aaagtttgtg ttatctataa 300
attaatttct tgaagggcgt aacatcaagc ntagagcggg ggtaggtat tcnaanncan 360
agggggaaac attatttgaa acatatttgt aattttcgta tagaaagga gtatcagttc 420
gcttattaat actaagtttg gctaagaaaa taaaatcga ttccgcatag cgctttatga 480
gactttcgct catgataaaa 500

```

<210> 1673

<211> 441

<212> DNA

<213> *Ctenocephalides felis*

<400> 1673

```

aaaaaactga ggtcgaagca taagtcgcgc cttccactat cgcttattaa ttatactttt 60
actatgtatt ataaatgaat tgaaaatatt ttttatctca aatatctaaa ttgttacatc 120
tatacaggcg tttatcaaca tcaacagtag aatgcctttc tgatcttttg taaaacaact 180
tatattatca actgattttt caaaactttt gtttttttct atctgatatg ttttttgata 240
taacatgtta atgattgata taacttcaac aataaatgac atcatatttc agagaatcag 300
ttgccacaaa aaataattta ttaatattgt atgtttgtaa atttgtaag aaaagaaaag 360
caatatcttg aaaacatata tgtatataat attttaaaaa aaaaaagnnn nnnncnnnna 420
nntntnnnaa anannaaaaa a 441

```

<210> 1674

<211> 262

<212> DNA

<213> *Ctenocephalides felis*

<400> 1674

```

actaggcaaa tcaatattat ccttttcgca ttcagagttc tgcaaaacac tttccgaacg 60
taatttctgc atttcccaaa aaagtcttct ataaaaatgt ctatctgaca cagtcgcaat 120
gtgtttgcga atttttttat cagacatatt tatttataca attttttttg acaaattaca 180
gagtcaaaca acaacaaat tacgaatata ttatattcta atattgttta gaattttagt 240
agcataagta tacgtatata gt 262

```

<210> 1675

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1675

```

acatttaata aaatttattg taaggttctg taggagaatg gaaaacgata ttgttaatac 60

```

```

aataaaatac aaaatcaatt ttttaaattt atcatcatac aactgcaa ataacatat 120
atTTTTTcaa ataaaataaa gttgcttttt tggctccct taattaccct tcatatgaac 180
tttatatcaa atgaacattt tataatattga agccttttat ctgataatag aaaaaaacta 240
tagttcaaaa gctttaggag aaagaaaata tccaatgcta tgtcaaaatc tttttcggaa 300
tcttactttt caaacacttt ttatgcttgc atatgcactt tgtgaggaac tatagcagga 360
gttgaattat aaggattgta atgcaaaatt tataatttca aatggccata gctaacacta 420
aaatcaaatg ttgatatttt ctaaattttt tccaaagaaa ttcaatgaca aattttgatg 480
gttgtgtaga atatagatca 500

```

<210> 1676

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1676

```

acttaagaac aaaaatctgg taatcatttg tgtgaaagt taataggaca aatagaaatt 60
tatacatctc taagtcattc aataaatgct gctaataaat aattttcatg aataactcat 120
caaaactaat tcagatttta atgattgaac cgttattcat taaagcaatc gttttctact 180
aatatgaaat ttgcctttca actaaatttc ctttataagt tcctttgact gcaagatata 240
aagagaaaat aaatgacatt ataattgttt atgtattcct atgtgagcca tttgcagtat 300
tcgatataat actcataaat cagtatttaa atctgagacg cctgctccat gtcataaatt 360
atgaacagtt attttcctca aatcctacac agtaattatt tgatatttat atagatgata 420
taaataaaat atctttaatt tcgttttggg taatatttta tggaagctga aatcaaaaac 480
atctgctaaa ataattaatt 500

```

<210> 1677

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1677

```

ctggtaacga ggaaacacta tttttaagag cagaagaacg cgattattca aattttaaag 60
agcacaaaatt tataccaaag caagatggca aaatcatgca agtgaagcat aatggagcta 120
gtcatatata tttatatttg ccagccgata ctgatttgaa agatttagat tcattatttt 180
ctcatggaga aaagacgctt ggagactggg aatcagctac cgatggatat ttctgtgatt 240
tggatgaaac caatgaagcc aaatcagttt gtatttctcc ttcagaagat acaacaaaag 300
tgaatcaatc tgagctatta gacgaattcg aaactaaata tgtcaatgaa tatgtagata 360
aaagaaagga aaaatgtccc aagtaacata aattatattc ttacaataac ttaatacata 420
tattaaaatt tttgtaacag tttatgtgta tgagtttaaa caataaatta ttaaaaataa 480
gattttnaaa aaaaaaannn 500

```

<210> 1678

<211> 330

<212> DNA

<213> *Ctenocephalides felis*

<400> 1678

```

acacgttttt ttctaataatt ttgagacttt gcaaattttt taaaatatcc gatttttttt 60
aaattaacga aatattctct attttttgta agcaatcttt ttataacatg tcaaaattta 120
gtttttttgc tgaaaataat gaaaaatttc ggaaatttga atttttttaa ctttgatttt 180
ttttgaaaat tttgattttt ttttgaaaag ttttaaaatt attaaatttt ctgtaaatgc 240
atttttgcac actgtcttct caagcaaat gtaaaatgaa atttatctaa tcggatgagc 300
cgttctctca aaaactgcat aaccgtttgt 330

```

<210> 1679

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1679

```

actcatttta tatattctcg gtggataaaa tataattaat tatgtcgcca tctaacggtg 60
tgctttacaa ataacaaaa tctggtaggg gggcttttga cccgacattt tgagctttta 120
attttattcc ttattattat gtaaaatata gttgttaaaa atacatggct aagacagcat 180
cgacgtttca ttaagttaa atatacattt tgggtctatcg acacggatcc agtcattaaa 240
aattacagtc cacgctttac aattaaatat ttgcgagttc gtctaaaagt gaagccaaat 300
aaagctctac gtgaatgaaa acccggaac ctgagaagcc gccattaaag cttggaagcg 360
tcgccaggag ttcactggaa ttggaaaact ataactaaag atcacaattg gaaatacaag 420
taaatccaca attagtctaa aaccatttca aaattgctta gtattattgt tgtaagttaa 480
gtctatgtct cggccgcgac 500

```

<210> 1680

<211> 187

<212> DNA

<213> *Ctenocephalides felis*

<400> 1680

```

aaattcctac aattattttc gaatgacata aaaaggatta aacagcctcg aaatgtcgct 60
gtttgtaatt cagcacactg taaaagcctc cagaaatcag acaggatgga tcggaattgc 120
ttgtctgcag caggcctctt acagtacaaa gcccagaaa accaatctgg ctgctatgaa 180
aagaggt 187

```

<210> 1681

<211> 412

<212> DNA

<213> *Ctenocephalides felis*

<400> 1681

```

acctccaaat aatgaatttg tcgttctctc tagattttaa ccagttcctg aatatcaa 60
tcattaagca tttatgtatg actatgtaaa ataaatgaat ttatatttta tcatttttct 120
aattcaatta taatgatgaa gaataaaaaa aaattcatct tgtcaaagat aacttaaaaa 180

```

ataattaaat ataatagat ttatctaaaa gcagttcgtc ttatgagaat ttatattgaa 240
 atgctatgtt aacttgtagt gccgtgttgt attttacaaa ataaaacttc ttacctaaag 300
 tgggtgttggg agaagtgttt ccaaaaccaa atgtgctagt tgctggtttg ttaaatgtat 360
 tattaataaa agagtttgaa gtagttgttt gaccaaattc tccaaaacca gt 412

<210> 1682

<211> 380

<212> DNA

<213> *Ctenocephalides felis*

<400> 1682

acaacaggca ccaccagaga acatggaatc cgaacgccca catttcgtcc aaccaagatc 60
 tgtgcgagc atcaaggaga atccccttcg ccgcgaaaaa cgcgtcaaga gatgcgcctg 120
 caactgcgaa tgtaaaca aaacccaag aaattattta cgaaagcatt gataaaatca 180
 ccgctaaacg gaaataattt ttaattcaat aaaaaatatt ttgttaaac atattcggat 240
 attaacaaca tgttatttc ttaatttta aactaatgca gttattaatt gtataataa 300
 aattagagat ttttattaaa gaatgacgaa aagttagat caaagtcttg tatatatgtt 360
 cttttaaacc tggtacagt 380

<210> 1683

<211> 182

<212> DNA

<213> *Ctenocephalides felis*

<400> 1683

acaaaacaaa aattcgcccc agtaagggt gaaataaaaa ttacattta tccgaaatta 60
 aaatatttct aaatttaaca cttctgcata agttagtgt tttagttat gattatatgc 120
 agttattttt cccggcaatt ttaattaca tgtgaaaacg cctagctaaa tctaactaca 180
 gc 182

<210> 1684

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1684

gacgtgcnan ttancacna nnaantggg gttgaanccn acctgncnca aaccgggttag 60
 agctcagatc atggnngant ganggganga acagaccana taaagcaagt tctggattng 120
 anaantantt tacaccaaca ncnacggcgc gancaatttt ggcggnangt nctactaana 180
 gtaangacgc tgccatccct tangcggcgt aacntnntan gcacacacag nggccaattt 240
 tcaattatat atgcttaatn aaaagangct tgntaagctc atccggtcnn cccaatgaaa 300
 tatangnagc tanaanaaca tantcctant ccaaancnat ntctatacnt ctntaannct 360
 tnaangggtn ntctcgtctn nttnnangtcg acgctcatnn catnanaggg nccttctatn 420
 cnattgtgng aagacagcaa tatttgntcn atnattantc ngcttncaan ggaaaaacct 480
 ntgttatgct cctttggcag 500

<210> 1685

<211> 377

<212> DNA

<213> Ctenocephalides felis

<400> 1685

```

accaaagcgtt aagttactaa cagaactttg gaaataccta cagttaaaat caaatttggt 60
tcacgcgcac ccatgctcag aatatcaaaa ataataaatg aatttgcttc tgagattaat 120
atcttttggtc tgctgatgac aaatataaaa aatcaagcca gaaaaattat ccttaaaaga 180
ctgtctttaa tagtgattta tagtaatttg attaaatggt taattttatt agtttttatt 240
taatgttata tatttgtagt ttatattaag tggtatgtat atatacaaag ctatctatga 300
actcttaata ctctaatttt ctcacatatt atctctttaa tttataattt gtagacttca 360
aatgtaact gtattgt                                     377

```

<210> 1686

<211> 333

<212> DNA

<213> Ctenocephalides felis

<400> 1686

```

gncnttttat caagtagatc cttattggtt ttaataaata ancataaaat tattctacat 60
aatgtcttca nngcgccctt ttgttagaag caccgtaaat cgcataaatg ctgttcgtgg 120
acaatgtaga aacagctcct acggctcatc tggacctcca gcagattatg ttcctccatc 180
catgaatgag ctaccaactc cacaaggatc ctggcaagct aaacacgatg cccgccaaag 240
gaaatataat gcaacccttc ttgctggcgt tgggtgtctt actggaaactc tcatttttat 300
gaaagcaaca gggttcgact tccactacta tcc                                     333

```

<210> 1687

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1687

```

acatttactt cttacactgt atctggaaaa aatactgatt tacgctaact aattttaagc 60
atagtgggtt tgttttgact tatagtataa atacatgaag cattactcaa aagggatcta 120
gtccacaggc aagattttta tttaacagat tatagtaatg cgaaaagatt tagatctgcc 180
ataaagtaac tgaaatggcg aatcaatctc gcaccaaaca gtattttttc agaccgttat 240
aagtgccatc aatattatgt gcttcgtaat cgcataataa atctcgagat agaccgatg 300
gtccacttta gacgaattta tacgagattc taaataattt attgtctatc aacctaata 360
tatataaagt taataaccca attcagtttt ctgttaactg tggcaaagt ttgttttagg 420
gaccacacct aaccaaggaa ttcggttgag aaatccacac gttcttggtat tatctgtggc 480
atcaaaaatg aaatatttta                                     500

```

<210> 1688

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1688

```

actaacattg ttgttgattg tttctatatg tgactaacta ttggttgaga ttaaaaaacta 60
atgaactgac ttctctcctt ttaacttccc gtagggttaag ttatagtaat cgcaaaaaaaa 120
atTTTTtata tttcacgttt cagaggtttc taaacatttt gaaacgtaaa gatataataa 180
aattttcatt ttcgattttt ttttttgCGa ttactataac ttgccctatg ggaagttgga 240
aaaattaagc tatgtatata catttttgaa attgattcac gatttttgga caattttaca 300
cttttctgat aattataaaa aaaaccgctc gcctgatcgt tgcgcaaaac taataaacgc 360
taactcacta agttaaatag aatggtttta gtttttttca gtagaaagga gaaaacttgc 420
ttaactacac tattttctaa atttgactt attcgattca gaatgacttg aacgttgatg 480
aaacctaata ttagcccatc                                     500

```

<210> 1689

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1689

```

accgccacat gagcactaag ggagcgccaa ttaatcacgt gatcgatttt ttaaggatt 60
tttaaacctt tgcccttggt gatacggtgt gatatccaaa aattttctga tatttttcac 120
ttgtgaattt agactgntga aaaattttaa agtttactat tgtttcatca tatcataaaa 180
aattattatc tcgctcttca ataaaacatg gatttaaaaa ttgaaataga agatccaagt 240
taaatgttgc attatcatta tttaatccag caataaatat atctgcacca aaatttgcct 300
caatacaatt tgtattagtt gcaataaaaa ccatccttat aaatttcaaa aatcacttta 360
ataatatcga ttactaacga ttattatttt taatctctta atcataggat taaaaggnga 420
cgtagccgga gtcacatgca tcgccaacta ccggttagt aatagatcac atagaattag 480
aaagaacggc catttagaag                                     500

```

<210> 1690

<211> 110

<212> DNA

<213> Ctenocephalides felis

<400> 1690

```

acaaactttg taaaaattta gttaataagt tacttgtaag ccatttattt ataacattca 60
aaacatctcg taagcaacat tttaatggga aaattatttt accctcacgg          110

```

<210> 1691

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1691

```

acgagtatta taatattttg aatttattaa cgcagcaatc ttgaccaat tatctggtaa 60
aattatactc ttttctcttt gaaaatatac tgtttgatt tcaaaaaagt atgcatttca 120
cacattttat gagtagttgt gtgaaacaat tggatttcaa attattttta cttaaaaggc 180
taataattat atattatttg atatcaatat taagctgtag tgatatccat tttcacttga 240
tagattacaa tgtaatttca agtaaaaaata ttctaaaaaa ggaccattt attataatat 300
gttatttagtg ttagaaaaaa actgaaaaat agatcaaata tagataaaac aaccggattg 360
cctcctaaaa agtcacgttg ttaagtcact tgcttacatt tttagctcat agaattctca 420
tgttctgatt gatgttcaaa aaattcaacg gtttctcgt agatcagtgg tagagctttg 480
ggattcaatc taaatccaag                                     500

```

<210> 1692

<211> 351

<212> DNA

<213> *Ctenocephalides felis*

<400> 1692

```

nccgcttgta tttcacacta gatcttgccg gccgagcatg tttttatttt ttacaaccaa 60
cagtagntta tatgatagat gcaaatattg aattaaacaa aaatcaaagc catagttagg 120
ttacatccta aaaaaatttt tggtaaaaga taatacaaaa tatcttagaa ttcaatccga 180
gtcattgaag catttattat tgattagcaa aaaaatatga aataattaat aaatattcca 240
aatcaaatat tagaatctat ctatatttga tatcaaacac aataatactt tacaagtatg 300
ttcatatcag ttttaactta tagaattttg ataggaaaaa tcttaagaag t          351

```

<210> 1693

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1693

```

acnnagtagt attgaagatc ttttgnccctc tgggtattnt tcattgacta tacagngtnc 60
anncttgttt aatatctgaa nnataaanat anatatatat aattatcaga ggtatttata 120
ttaataatat atacctntga aattatttca gttcccatag aactccctaa tttattataa 180
agctcgccga gatttgaaaa tgctgatgat cgaacaaaaa aatcctcatc atgtgtgcca 240
ctcagaaaag tattaagaaa tactgtttta tacttttgga caattgattt ttctggaaaa 300
taagataatt ataaaaatcc atctctaata ttttagcaac tgaattaagc acctgcatta 360
aatattaatt ttactaatgc ttcaccaact tttaatctta gctcttcttt tccatccttc 420
tgaaatttat catgtcgatt atttaaatat tcttgtgtca gcaattcaat tcatcttctg 480
gcatactttg gaaacttctg                                     500

```

<210> 1694

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1694

```

attagctgta gcagcattgc ttgagttttg agttgataac ctgcaaccta gcctgcgact 60
tctgttctat tgataaagga gaaataatta ttttatgtcc aaattacagg gtgataaaaac 120
ccattgacgt caatttgaaa aaaaattcaa taaaaaaaca atggacagga ggatgatata 180
ttaatagaat gtgcctttat atcaataatt tcgaccacaa aactgcctt ttatgaatta 240
aaatgtcttt aaaagaatgt gaaagtgata taaaacattt aaaatcagaa tctatgttat 300
ttgcatgtga agaaaattcc aaagaaaaca gtgcaaaacta tttaaatgga aaacaaccaa 360
tcaagaatgt gagtaataaa atattaaaaa actgtcaaaa tgtgacagct ccattgaggg 420
aatataaaa aatagcagcg atattgcacg aaaacgatgg aagatattag caaaagccct 480
aaataaaccg gcacangcat caatggaaga ttttctgtg cgtagattca caccttcgtg 540
tattaaatc

```

<210> 1695

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1695

```

gcgcgaacaa caacagttca gtgcgaattg ataaagttat cagcaaaaaa taataaaata 60
acagtaataa tacttgtcga taattttaaa cttgtgcatt tattactagt ttatttccag 120
aagtagaaat aagtggctc gactattgga ggaggtttat ttactcataa aacgtaaaga 180
aattaacatg taattacagg tcacaaatat ataattagca aatacgtaat ttagctagag 240
tcattcgtgc gtaaaactaca gcaccgatca tttcaaagga aatcattggg aaatttttac 300
aatgtggata ccgttgtttt ttattttaaa tatcgcttg gtatacgag gaaaattcga 360
agaaatctat gcttggaag acgtagattt tgtgtggcct tctaataaaa taaaagaaga 420
atatattaaa aatggtcata catcaaggaa aataatctta tcttgggaat ggccaggtgg 480
caagataagt ttttctcaca attccagatg gaaaagtggg gtacctcaca ttggctatat 540
ccacttaat

```

<210> 1696

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1696

```

gaggagtcgg tccttttagcc tggggtacag aaacacatcg aaaaccgcag acgcttccac 60
caaactctgag tccaaaattc ttccatagat cgccaagaga agcattgaga agagtcacta 120
gtctattgat caggaaaggg gcagctgggt gaggcacgcc ccgtgactcg cgtaaagaac 180
gcgagggcag cgtgttcccg atgccgcttg gacaaacggt gcatagggaa gcttttagag 240
aagtgggtgcc taacaaaaga agaggatttt tgaaaaactt ttttaagaaa tctaaacatt 300
actcactgga ccagtaaata atcgaaaagt tgacaattta ccgagttcta tgtttttttag 360
gcataagata atatgtacac tgccctcaac tttagtctta accataatat tagcattgaa 420
tactactgta gttaccggtt ttaggttgta ggattattta tttattctaa taatgaatta 480
caattaaccg tctgcatatg gaacgaaggg gaagtaagac agtttgcaat aaaatagtgc 540
ctgagaaat

```


<210> 1697

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1697

```

aattgatgaa gcacatgaca actctagctc ttctggtgat tgcattttga tagaggatga 60
tcctatttgca gatactggaa ataaccaata tcttaagttt gggaaagata ttgaattaat 120
acgtatgggt gaatcaatgg cacagaatgt cgtgtctcct actgttaciaa ctccaaacng 180
aggaaccatg ccaaggaaaac gaggaagacc aagaaaagat gctaacttaa ttgcgcaaaa 240
gaaagaacaa cttgctcaag aaatgctaca aaacagtctc tttccagcac agcatatgct 300
tgaaggtcta atgactggat ctggtgaaag cccagttaga acaagtcgta gaagtaccag 360
aggacgatca tcagtgggta aaggaggtat gattttctacc acaccaaggg ggcgtggcag 420
aggccgtggc tctaaacagc aagctcttca gggttcaatg gaacagcaga ggattcaaca 480
natgctgaat atccaggaca aatcattcag cagcaagctt cgggtgataa tgccaggtgc 540
atgaaaagt                                     549

```

<210> 1698

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1698

```

ccgtaaatc atattctaaa cgcacttgcg aatactttta ttcgacattg taacgttgac 60
tatgcttatt ctgtgagaat tttcatgttt tccaaaaatt ttcacaaaac tgaaagagtg 120
ctcccgtaaa ttcacattct aaacacattt gcgaatactt ttatgcgact ttgtcactta 180
gactgtgctt atcctgggag aattttcatg ttttccaaaa atttgacaaa aagtgaaaaa 240
gtgcttcagt tcagtcacat tctaaacgca tgtgtgaaca catttgtacg acgttttcaa 300
aaaattttca caaaattgaa aaaagtgttc ccgtaaatc acattctaaa cgcatttgct 360
aatactttta tgctactttg tcacttagac tgtgcttatt ctgggtattt tttcacattt 420
tcaccagaaa aaaatgtttc gcttcacaca tacttggaag aatgctcttg taaatcagat 480
tggtatttgg tcttttggag gtgggattgg tgnaaacgct gacctacaca atcgtgctac 540
aactcatat                                     549

```

<210> 1699

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1699

```

atttggtcgg tgtaacgatgc ctccgaagcg tctttgaagt ggtcaatgtt catggggctc 60
aactgttctc ataggctcac cgccagttt gccttacgat cagtaatgaa ctagaatcac 120
tttaaatacc ttgcgacaa acaattttta aatagtacgt aatttacaat tgtaaacaaa 180
attgtcattg tatatactta tatgtgtata tgtatacaca tatatttata tagttattta 240

```

```

tacatattat atataatata tatgaatatg tatatatggt gttatcgata aaattaattt 300
tcactaacac attgttaggt tttttaatat gttttaaaact tcatttcgca attttatata 360
aatatgatag ataaaatggt gtcacgataa tagttgattt gaatatatat gtagatagag 420
aatgcaatca tttggatgat atatttccca aagtgcagt tttattgcta agatatattt 480
acataggtca tgtatctagt catgtattca agttactatt cgtgnaatga ataatacagag 540
tatttgga

```

<210> 1700

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1700

```

atcgacttaa taagatncct acgaaagtgg aattgattaa gaaacgnagg tccttaataa 60
aagacatagg accttaataa gagatacagg cccttaataa gagatataga ccctttgatg 120
agacgcagtc gacgcagtag ctctgccaac ccttaggaaa gacgggtggag tcgctgggtg 180
gggatatagt gtgttcgtga attttgtgca aaggaaatagt gaaataagag atttgtttag 240
tgaatattgt aacactggtt gttctactgt tgctgtttta ttatttagtg aagaggaaag 300
ccaaaacaat ggtttcgtcc cagaaagtcc ctttgggcag ttgctgccgt tgctacactc 360
tacggacggg caccatcttc agtgggtgtaa tgggaatatt attggcggtg gtcgcttaat 420
attgatgttt gcacttcggc gagttcaaga caataacat agtcagctcg catcgtggat 480
cgtaaagata tattaccatt aatctacctg actgtctcat atcggtatgt tgatatagga 540
gccgtaagc

```

<210> 1701

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1701

```

gcggtaacgt cattcattgc aacattaata tgggtgttcg tttacctgct gggaattcga 60
gaggtgctac aacttcccat caactggctg ttgacggagc tggttaacac tggcatcatc 120
accgtgctat atacgatcgc tttcattgtg cagttagcga aatgggtccc gggttggtg 180
gttcattcgt cgcacaaac attacggcgg gagtttttg aattttcaat gcattggcgt 240
atgctgccgg agtttacttt ttgcacttgg aatggaaaag cagcggcggg gcactacga 300
actagtcctg gttattatag ttcatttact caacaccggc tgttgattc atatcaacta 360
tttaggataa aattcttatt atatttatcg ccaaacagtt tgtatgtata agtacaaca 420
attcgttgaa gaattatgac gaaataacga atataaaatt tatatttttc taaatgtttc 480
tatatgaatg gttttatata aaaattgata caatatttca taataacctga tgaattatat 540
agctggata

```

<210> 1702

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1702

aataacgctg ttgcnnntnc tggaactgta ctggcagcaa agcganccgg cgcggcggac 60
agtgggttgg ctgcgaatgt taaaacgtct gcgcaaagcg cggaaccac ggcttttacg 120
cttaagtcca ttgcatatgg atgtccacgc cggaaattta gtgcatagcg cgtcagggtt 180
aaaactcatc gactgggagt atgccggaga tggatgatac gcgctggaac tggcgcggtt 240
gtgggtggaa aatactgaac agcaccggca attggtcaat gactatgcca ctgcgcgaa 300
gatttatccg gcgaattat ggcgtcaggt caggcgatgg tttccctggc tggatgatgct 360
caaagcaggg tggtttgagt accgctggcg acaaaccggc gatcaacaat ttatcaggct 420
ggccgatgac acctggcggc agctattaat ttccgcgaga catgaccctt ttagcactcg 480
gtatcaacca taaaacggac ctgtatcgtg gaggggggnc cgggtccaat tcgcctatag 540
tgagtcgat 549

<210> 1703

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1703

gctataccca ccactagaac ctgatcctgt ctttagacgg agagtttttg ggcctgattc 60
tatttttaaac ggaacaccca aagataaagt agatagagta cggggaaatg attcaaaatt 120
agttataacg gcaatccaag gtttggtagc agatgttgat caaacaagag ctgctgtaca 180
aaaccaacat attgaagatt caacacgaaa tactagtgtg gaggaccatg tgcatttaaa 240
tgggaatatt aagaccagtg acttagttaa atcgaaaaca tcagaccgga ctattaattc 300
aaaagttcat ggagaagtag aacataataa aaatttcaca caattggatc aggaaattga 360
agacaaacct acagttaaga ttttgggcat ggagatgact acgcagtgcg aaggtggcag 420
aaatttagtc aaccaagttc accaattcct tatcagctcc aagaccagaa caattgtgcc 480
atcaatatat ttggaggact tcccataatc cagttttggt cagaattgac cacacagaat 540
tctccgttc 549

<210> 1704

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1704

agaatcagct gtcacttatac ttggttacat tattctgtat attttcaaga tgcttcaata 60
taaataattat gatacgccag atggccaaga ttttaataaaa aaattattta taactggaaa 120
atatgctact ttaactggct taggcatctc atcattagat gtgcttcttt attcaaagcc 180
taaagggtat ttggaagcat taggaagata tgcaacagtt acggggcctc ttgtgggaat 240
ggctgctggt ttacaattg gtacctatgt agtaccat gttcgtgaaa aagatgacta 300
taagaattat gtagtgggg ccacttcagc tggttgtcta tggggcgctt tacgcagaag 360
ctatattaca gcagtattca gttcttttagc gttttcacta gctggtgta tcaagaaaaa 420
ggcaatagag aatgattata cattatttcc tcacctaaga gacattttgt ggtcattgtg 480
gagccaaaag ccgatttact atcttaaaag acgccaaggg tggcccaggg gaaaatgata 540
acataaatt 549

<210> 1705

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1705

```
agattccttag tgcgatatag gatataacat cacaattagt gaaattgatt tgaagggaaa 60
aatgtcggaa acgagcgagg gcgtccatcc gttggtatgg tccgcgggtt tcattgcctt 120
taccctcttg ttggcgcaag tatgccgcat ggccgcctcc aggacgcagc gcggaatgat 180
ccgatccttg attttggaag gaatcgccgc cgtgaaactt tgtgcttcct gcttcgaatt 240
gatcatagtt gccgacaact acggtgtatc tatgtacgct attttctgt tcgtcctgac 300
gatatggtgg tccatggttt gggcgatgc cactgcctgc ccgtatacgc ttctggaaga 360
tgctgtgaa gacaaagcta cattgcgcga agctgactga aaacttgggc acaactagtt 420
ggcgggtgtc gatatttcgt atgtcaatta ttttggtatt tggagcttct caacgcatac 480
aggaagagca ttgaaaact gacggtgatt tacaggatc tctatgctag gaacgnaata 540
gaagattgc 549
```

<210> 1706

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1706

```
gagagagaga gagactgttc gaggaagcaa tgaagggtcc acttaacgcc gaacctgtaa 60
ataaatcatt ccatcagtat ttgaagccgt ttttgcaatc caatctgtga aaagaaaata 120
ttctacattt ttctagataa agtggaaatga attgaaaata ttaaggagtg cacgtgtttt 180
gttttgcgaa atgctatatt atctgtccat ttatacacia gtattcagag attaaaaaat 240
caattactta aatcttattt tgaatgccac atatttatta caaagggtt caactataaa 300
tttatttttag atatatactt atcaggatat acctgataat tatgtctctt ttctgagcat 360
ataatgatgc attcacaaaa caattttgaa caaaattaga aaaatgatat aaaatgtaa 420
tgacctattc ctaaatcatt gcttcattt atttcgctc catttttttc cagcggttta 480
ttatagtaat atgatttgtg aggaatttat cttaaggagc atttgtaatg aattagaagt 540
gtagatca 549
```

<210> 1707

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1707

```
gagagagaga gagagagaac tagtctcgag ttttttatgt cgcgtttttg tatgtgctat 60
aatttacatg ttgattattg aatcttggtc ttccatttat ttgaaaataa aattcatatc 120
ttagttattt aataataata acctcaaagt ttatgacagc cagtttcata acattgctag 180
tggtagagat tattagttag gttttatcag atagtgcacc tcttaataat ctgacagcag 240
```

aaaaaataac aaaatatgtc agattcgatg tcaacttcatt ccacatcggc aaaattgatt 300
gtggaaaatc ctttatggga gcaaaatacg ttcgttgggc ggttccgtca cttcttatgg 360
atgaccgatt ggcgatcctg ttttgcttca gaacgtgatc tcgataaagc agaagagttg 420
ataaaaaaat gcaaacgcgg tgaaggatgc ggtgatgcgc aagggtgcgc ttgattaccc 480
aagagctata tgaatcacct tccccggcac tggagaaaac aaatctttcg accatgtatt 540
cagtgcccg 549

<210> 1708

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1708

ataaaatgac aactctcttg ataatcgcggt cgcaaaaaaa catttatcct ttcaaaccga 60
tcacaaaaac acctaaatta accagcattg tgaataaagt gtaagaaccg acacaagact 120
attaatacaa tgaccagtgt caatctgaca agaagatgtg tcctgtttgg gtggaagcat 180
tttgccaaaa caagaaccaa cagcctcata tactcttccc agagacaact tattacacct 240
gtgccccaga tatctgtgtt gtcttcaagt tttatcaaaa gcagattcta ttcgacacag 300
aaaaatgaac agagtgtctat gaaaccagac gatgatgatt ctacggataa agacaaggat 360
aaggaagctg ttaagaagga ggaggatgtt aagaaaatgg gtttgttaag aagtttaaac 420
aaatgtacag ggattctgga tgtgctgatc cgggtgcatgt tgcnccttcta cgtgctgggc 480
tgnctattta ctcccgcaaa agtggtgtgg tgtgatagca tcctggatcg tcaagcagtc 540
tgactatcg 549

<210> 1709

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1709

cttgaataac acatcacaca aaaataaaat tatctagtagt taaatattct attttgttta 60
tcaaaatggt taacataact catataaaca ctataacaac ccaagaattt tgcgaaaaat 120
tcaacaatgt catagaacac taccggggg ctgctgaaga catggctaag caaagacctt 180
tcggaaacac cgaagatttg atacagaaat ttagtgatta tttggaaaat ttaccaaaaa 240
cagaaaaaga gctgatttta aaactgcac cagatttagc tggaagattg cttgatactg 300
gcaatctgac acctgagtcg cagaaggagc aggaggcggc aggtttgcac aaattgtctc 360
aagaggaaaa acagttgatg accgacttga atttagagta caaaaagaaa tttggtttcc 420
ctttgtcatt gtagctcgtg aaaacaaagc tgcagcaatc ttaaaccgct aaaacacggt 480
tactaaatac aagagaccaa gactctctgc cggataataa gtcaaagcta tcagattgga 540
atcttactt 549

<210> 1710

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1710

```

aatnnaaagt gaacattata tacattgttg gttacttaga tccaagttat aaataaatat 60
taaaattcga caaatattat tcacaaaaat atattgattg caaatacaaa cgcagattta 120
ttatcaaatt ataatagcat ctcttacgta ctgtgtgttt cccagttcta atcagtgttt 180
tcgtgtttca agtttgata aaataaaaat ggccgataaa gtaccagaca ccaaccaatg 240
cgccttgtca cagaaaaaag tcgaaggggc caaaagcaac ccttctttgc tgccccattt 300
ggagtctttg gaacgcatga tgaactgcc tgtggtagaa gcggcctggg cccaatctca 360
gggcgtttat gataaagtta aaggttacia cccgatgctg acatgggcat ttggaacagc 420
gaaagcacag tcaattggcc tggcaacagc ttcccttaca tccagaaaat tncaaaccaa 480
tccactatgt cgatgagacc tcgcaaagga tcacaattag aagctagttc atcgchangac 540
acctagnga

```

<210> 1711

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1711

```

aagaactcac tattgtttat cattccatgt gtattttcat atattctaga agtntaaatt 60
attctaagc aaatgcttaa atatttgaa aatatattgc tatgtgttt tatatgagtt 120
cattgatat atgaagtatc ggagcatgtt ttatttgtgt ttattttatc atcgatatc 180
taattgttta tttaactgaa atgtgtttaa aaaatattat ataattctta cttatttatg 240
ataaaaattc aatttccatt taattataag attctttgac aggttttaag actgttgatt 300
cgttttaacc acatttagag caagagttaa ggtaacata atcagtataa tatttcaata 360
atgtgacaat gagtaattt tgtactattg taattgtact gataacacaa atctctaaca 420
tataaaacat attcattttt cttcaaacat aactaatcg catttttgat tatttgacat 480
atatatatat acatcatcat cntacatata tatatatata tatatatata tattatata 540
aaaaatatg

```

<210> 1712

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1712

```

gttttagtgc tcaagtgtc caaggttaatt agccagcngg tgaagaaata gtgagtaaatt 60
atcaatcaaa gtgtttttta ttaatactgt tgaacatcaa aatgagtgt aaaaattgaaa 120
atattgaatc ggaaaatcca aaaataatac aaccgcagta cagcgtccaa aatgtctgcc 180
cgcttcaaac aagcgctact gaagcgctc tatcaggaga aaaaggaaat gatagtgata 240
gaaaagaagc aaaccaagtg ggtgcaacaa atgggaagaa gaaaaaacat agacgaggta 300
aatgtaagag aaaacctaatt aaaccgtaca ataaaacagc ctggaccaa cgtaagaatg 360
tccaaaaaga aatgatgaga gttcgtagt cccgtgctaa aatattagcc atggggcaca 420
cattagttcc ttgtaacacg aaccaatttc tcatggaaga tcatgatgtc ctaccaagg 480
attcatctgc agactcggac tctacttagt gtcgttctga agacactctn atgtcttct 540
gagatgagn

```

<210> 1713
 <211> 506
 <212> DNA
 <213> Ctenocephalides felis

<400> 1713
 gtnttagaga gggtatttaa gattgttata ttttcataaa tatctcggac atggctacta 60
 agtttattgt aaaatgtggt attgccgggg gcatagttaa tcaatcagtt gaccaaggac 120
 tatggggtag cagttctaga acaattgaac tttatgaaga tttatctaaa ctctggaac 180
 cagtaaccaa agaagttaag caaaagattg agcttcacaga tttgcctaca tctggtgaag 240
 ttggtttcat tgcaacttat tattggaatg caggtgtgaa agctacattt gcatttttaa 300
 aagaatttcc aacgaatact gctcgattgg gatgcaaata ttataattat attgtaaata 360
 atcctgaaat aaaaaaattg caggagcaaa cagaaacaaa aacagaaaag aattgatatg 420
 tatatagaaa aaaatcatga ttatggatta ttagataaat atttaataat aaatgctata 480
 catcttaaaa aaaaaaaaaa aaaaaa 506

<210> 1714
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1714
 gagttttttt tttttttttt tgaaaaatat acactaagta attacattta tattcaattt 60
 acatttgtac atcattgtaa ttgactacga attaacagca atgataaaat actttatata 120
 tgtatatata tatatatattg aaaatctgtg taaaaccctg tacaaaaata ntatacanga 180
 caaaaaaaat attacatcat ggcaacctcg actgtccatc tntcaattaa aatctacact 240
 atcttttggt tggtattaac attttcctat tggatttaat tattaattta aatgctttca 300
 atgattcaat tagcggaaatc attttgcttt ggatatcttt tcacatatct cgtttgtgaa 360
 ttctgaacac ttagcgttgc tcctaaatca cctgttaggt atttggcttc acggattgct 420
 cgaaggctgc tgtttaatta agtctgcgtg tttgaaggct atgtgctcag catcattcgg 480
 aggatacaag agggcagtg ggttgctttg cttgccgctt gctgggtgnc gtgccagatc 540
 aaangcgtc 549

<210> 1715
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1715
 aantntcgtc tgtgaatatt agggaaaagg cgggttttaa agaatttgca attgatatta 60
 agtgggtttt tatttaatta gtttaagtgt tatataagtg caaatcatg acgttaatag 120
 tgaaatggct cagttctttt ctgctgatcg catccttggc attagcacia gtgaccccca 180
 aggaccccg ctcgatanaa ggcttcgatg gcaacatcca cgcctggac gcggctgaat 240
 tggacttctc ttacgaatg ttagctgctg cagttcgatc tgcacctggt caaagtgtat 300

```

ttttttcacc ttacagcatt tatcaagctt tgetcttagc gtatttctct agtgctaacc 360
ataccgaagc taacttgaag aaaacattag ctatcgagga acatgtgcc aactacaag 420
ttctgcatgg atataacttt gtgagaaaaa tgcttgata tagaacgaat caatcatatg 480
aatcaatntg ctgtcgcttt tgtactaaga tgaccanttn ggattgattc aagctgcatg 540
agagacaaa 549

```

<210> 1716

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1716

```

attcnatgat acaattttgt ataaattaga atggccagga agaactgacg aattttttaga 60
acctccaggt agtgagtcta tgttcatcac aacagctgat aaagaacgat atcaatgttt 120
tgttcctaaa atctcaacac cagagtctga aaaaaattta ccatatagtg gaccaactgc 180
gttagaatta ttggcacctt tattcacaca aactgcttgt tcatatcgtg ttgaaagcta 240
ttggacatat aagctttgcc atgggcggtg tgtgcaacaa tatcatgaag aacgagaagg 300
gaaaaagggtg aaaactcaag aatacttttt gggaaagtgg tctgctgaaa ggcattgatga 360
attattggct gaaatttcaa aagcagaaaa aagctcagaa cctttgcgaa ccacaaaaat 420
tgaatcagca gtttgctttt gtagaagtag ttatgacaga aggtctttat gtgattttaa 480
taataaaaaa cgagttacaa gagttctgat gttgtatgca atggaaacat gaaattattc 540
ctaaagaaa 549

```

<210> 1717

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1717

```

aataccggtg gcgaaggcgg cccctggac gaagactgac gctcaggtgc gaaagcgtgg 60
ggagcaaaca ggattagata ccctggtagt ccacgccgta aacgatgtcg acttgagggt 120
tgtgcccttg aggcgtggct tccggagcta acgcgttaag tcgaccgcct ggggagtagc 180
gccgcaaggt taaaactcaa atgaattgac gggggcccgc acaagcgggt gagcatgtgg 240
tttaattcga tgcaacgcga agaaccctac ctggctctga cateccacaga actttccaga 300
gatggattgg tgccttcggg aactgtgaga caggtgctgc atggctgtcg tcagctcgtg 360
ttgtgaaatg ttgggttaag tccgcaacg agcgcaaccc ttatcttttg ttgccagcgg 420
tccggcggga actcaaagga gactgcagtg ataaactgga ggaagggtgg gatgacgtca 480
agtcattcatg gccttacacc agggctcaca ctgctacaat ggcgcacaa agagggggnc 540
cgtcccaat 549

```

<210> 1718

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1718

```

taacgttact aacaaatcgt catctacttg taattattaa gtaatacttc ataattaagt 60
cctgaaaaca accagggcag cgggtttaaa taaattgtcc tcaacatttt ttcttaaaat 120
agaggcggtt tgtatgccaa atattcatga atatgtactt atttcaagtt tcgtttttag 180
aaatactatt taggtattgt aatagcatgg actatcattc caaaatccat atctattttt 240
ataattgttt ttgtagaatg atattaggag agacttatat gaatgatttt gaacaataat 300
ggttgaaata aactattcaa tcttattact ttttacatat atgtatttat ttacatataa 360
atacatattt gatttcaatt tgattcaatt gtttgttgaa tttttgttg atagatcttt 420
ttgcagtgtt ttctcgtaag ttaattcaaa tatatgcggg cataagtaat tcaatagaat 480
attttctgt atacttctat cgtattcatt gaatatatta attgnaaagn gctatttata 540
tcggtaaaa

```

<210> 1719

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1719

```

agaacagatt ttcaaagacg ccaatgacag tattacactt ttggctccca atgatgaagt 60
ctttgaatca ttgactgaag aagatcttaa tgtattgttg gaggataaag acgccgctag 120
tgagacattg aaaatgcatg tacttccaga gattttatgc tgcaccggaa attggccata 180
acgtatggcc attcttgga tctgtccgat ctttgacaag gccattaaat atcaaccgtg 240
atccaaatac cgatgaagtg tatattgga ccacaactgt cgcccaatgt gatgtaatga 300
atattaatgg agtcatacac agagtgcaca aggtaatgtt acctcaacga cctaaagtaa 360
gaatgccttt ctccgtcaa ttcatgtttt actaagcact gattaagcgt gaatatatat 420
tttcatatac caaataaagc cattagtttg aattttcgat atttgtaaaa tgagatgatt 480
gaaatatttc attaggacgc taaatcta ttagtattgt attaattaaa aatttataat 540
taattatag

```

<210> 1720

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1720

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ataaaaaata agagaaaatg gtcgtttgta gagttatatc attatcttgt cgccgtttac 60
atgcacctgc caaatttttg aaccactttt tgaattcaca aaatcaattg gcaaggacga 120
gtattaaata tatttctaca tcacagatta actttgcaga acgtaagtac acagataaac 180
atgaatgggt tgttgtcgaa ggcaatgtag ggactgtagg aatctcaaaa tatgctcagg 240
aagccctcgg agatgttgtt tatgccagc tccctgatgc aggtacagat ctttctcaaa 300
aggatgaatg cggagcatta gaaagtgtaa aggcagcatc agaattatat tctcctgttt 360
cgggcaaagt tactgaaaaa aactcagctg tagaaaattc accagctttg attaacacat 420
catgctatga tcaggttttg ttacaggntg gtattcaaag taaatctgcg aagcctgaaa 480
ggtgaataaa ttgatgagtg agaaaagtat gagagttttg aagannacc attaaattgg 540
ncattaaan

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<210> 1721
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1721
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 aaaatgggtg tttagcattt gttattcagg aggacttcca catttgtagc cactattatg 120
 gcctcgacgt tctttttcga aagaacgttc gaattagggt ctgaatacat gttcaacaaa 180
 gttaatgaag ggaaactgtg ggcgcacatc aaacataaat atgaataaac aacaactcaa 240
 attggataaa gtagagttaa ttatataagc tagacaaata aatttttatt ctgttacttc 300
 ccaaggcttt tctggtctgt cagcgtccca tggttgagcc ttcttgaatc ttgctgggtc 360
 attgagtgcacacacctg aaaaatcaat tatgtaataa aaagtgtaaa atataatata 420
 gtagtaacag aaaaaaaaaa aaaaaaaaaa aaaactcgag gggggcccg acccaattcc 480
 cctataggag ccgattacaa tcactgggcc gcgtttacac gcggactgga aaccctgcgt 540
 acccactaa 549

<210> 1722
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1722
 atttatttag taactttaat tagtgtacag tattagcaaa caaaatatga tgaacattca 60
 aaaaatcggt aggagcttaa accgagctgg agttgcaaga atgtcaactg gacagtacgg 120
 tgatgggtgct ggcaaaggag gtggtggtgg tggatccatc cgtgaagcag gtggatcttt 180
 cggcagaatg gaagctgcta gagaagaaga attcttttat aaacagcaac aagcccaatt 240
 gaagaaactt aaggaacaag caatagatca gaaaactttc catgaggaac aattaaaact 300
 tcacaaggag gctttggaga gacatgaaaa acatttggtc gagcttaaga agtaaatga 360
 agtttcatat atagcattat gaaaatgtta gacagtata aaaattcaaa tatttggtac 420
 tatttactga attaataaac ttgcattaaa gcttctataa gttattagtt ttctagcatt 480
 cttaatatatc tcattgcact acattagttt taaattctgg tnatnatgt atgnactaga 540
 tttgnaata 549

<210> 1723
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1723
 aatctgctta atgcgcgcaa acacctctgt cagctcgctg acattccccg ccagacgctg 60
 attttccagc tcagcagtcg ctttacttct gctaacataa ccgggatcgc ggcgagacag 120
 ggtaaactcc gccagaccaa tcggatttga acgataagaa gaggtttcac cggaaggaat 180
 cagttcgtcg gtggtggtca cttcgtcgag gatcttcgag cacactttca ggacgatatt 240
 gtcagtcagc gcaccaat ccggccagtc tttaatgttc ggcccgtaaa tcagcggttg 300

ctgagttgcc cctttcacaa agccctgata aacacggttt ttatacggcg ttacatcgaa 360
 ggcgtactcc ggcacgttgt cccagcaatc aagttcgctg gcagaggta aatagccacc 420
 gtttgcgcag tcgcagcgat agaacgagcg tcatcaacgc caccgctgac atctgccatt 480
 agctggctta gagccttcgc ggtcgggaagt tncgcgtggg tggcggatct cacgcagcgg 540
 acagcgttg 549

<210> 1724

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1724

gtcagacgga gacgtgctcc aaacgctctt ataaaagaaa ttgttaaate tattgaaate 60
 cttattcatc ggtgcctatt ttcggcttaa atatggttca aaagaagcct aagaagaagg 120
 tcggaaagaa agtggcagcc gcccttttgg ctgtgaagaa gtctgaaccc aaaaagttgg 180
 tgaatccttt gttcgagaag agaacaagga actttggaat cggtcaggat atccagccaa 240
 ccagagactt atccagatgc gtgagatggc ccaaatacat cagaatccaa cgccaaaaga 300
 gcgttttgcga gaagcgtttg aaggtccctc caccaatcaa ccagttcacg cagactttgg 360
 ataaacaaac agctacacgg ttgttcaaga ttttagaaaa gtacaggccg gagactgtat 420
 tgctaagaag gnacgtttgc aacacgtgct gaagctaaag ccagggcaaa gaagacacac 480
 ccacgaacgt ncaatgttgc gttccggcac aacactgcac aaantgtgac aaaagaagna 540
 cagnttgcg 549

<210> 1725

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1725

ctttgggggt aagcgggggt cctgtaccaa aagattcatc agtccgcac aagtgtccgg 60
 gttgccaagt tcgacccgtg ttccattcca atctttctag ccagactcac aaaaaactac 120
 aaccatggct gacgatgagg agaagaagaa gaagcaggcg gaaatcgacc gcaagcgtgc 180
 tgaggtgcgc aagcgtatgg aggaggcctc caaggctaac aaggccaaga aaggtttcat 240
 gacccagac aggaagaaga aacttaggtt gcttctgcgt aaaaaggctg ctgaggaatt 300
 gaagaaagaa caagaacgta aagccgccga gaggaggcgc atcattgaag aacgttgcgg 360
 taaaccaaag aacgtcgatg atgccaacga agaggcgggt aagaaagttc tgcgcgatta 420
 tcaccaacgt atctgtcctt ggaagattcc aaatatgata ttggatctcg taaacgcaag 480
 gccttcgaga ttgccgtctc aactcacagg tgaacgacct agangaaaat tatgaacccc 540
 cctcaagaa 549

<210> 1726

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1726

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aattcggtt cctgctngac gctctgaaat acggtactcc gccgcacgca ggtctggcat 60
tcggtcttga ccgtctgacc atgctgctga ccggcaccga caatatccgt gacgttatcg 120
ccttcccgaa aaccacggcg gcagcgtgtc tgatgactga agcaccgagc tttgctaacc 180
cgactgcact ggctgagctg agcattcagg ttgtgaagaa ggctgagaat aactgatatg 240
actcaaatac acgaaatcat tcgcgttgca tcgaggcggc aactgagtga actcccatga 300
gcatagataa ctatgtgaat gggatgagcg aaggcagtca acgaagaggc agcgtgaagg 360
ataaagtgtg taagcgtccc gtttcgatct tagtggtcat ctacgcacaa gatacgaaac 420
gggtgctgat gttgcagcgg cgtgacgatc ccgatttctg gcancggtaa ccggcagcgt 480
ggaaaagggg gaaaccgcgc cgcaagctgc atgcgcgaag taaaggaaga gtaccantgt 540
gttgcgctg

```

<210> 1727

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1727

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acgagtcatt tgcttccgga tggctgacga cctacagctt ccgatgtcag ccagtcgatt 60
attcgaggtc gccgaagcc atgcggatgg tgcatggctg ttggtggtag tacttctcga 120
agttcacgga gtttttcgat acgattttct tcgttttgcg taagaaaaac aaacatgtgt 180
cgacactcca cgttattcat cacggatgta tgccaatgtc cgtctggttt ggctcaaat 240
tactccagg tggtcacagc accttttttg gttcttgaa tacttctgac cacattatca 300
tgtattctta ctacttgctt gccgcacttg gacctcagta ccagaaatac ttgtggtgga 360
agaaatacct gactggtctt caaatgttac aattcgtcct gggtatgatc cagccttcc 420
agctgtgtca ttgaatgtaa ttaccacagt gccttcgttg gggatcggca tgcatgcagt 480
catgttctac ttctattctc tgtttctaca aacagactta cacaagaaag aaagaagaga 540
agcgtatgaa

```

<210> 1728

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1728

```

aatttcctgt gaggtgatta ccctttcaag caatattcaa acgtaactat cctttaattt 60
tcggatccag cgcacgcgt aaaccatcgc ccaacaaatt gaacgccagt acggtcagaa 120
aaatagccag ggccggaaaa acagcgacat gcggcgcgat aaccatatcc gctcgagcct 180
cattgagcat tgctccccac tctggtgtcg gcggctgcgc accgaggccg agaaatgaga 240
ggctggcggc agagataatc gaggtaccaa tgcgcatggt gaaaaacacc acgatagaag 300
agacgggtccc aggcaggata tgacgcaaca aaacgggtcat atcgctggca ccaatactgc 360
gtgctgactc aataaagggt tgctgtttca acaccagcgt gttgccgcgc accaggcggc 420
aaacgcgggg cccggtaccc aattcgcctt agtgagtcgt attacaatta ctgccgtcgn 480
tttacaacgc gtgactggga aacctgcgt tcccaactta atcgcttgca nacatcccct 540
ttngcagct

```

<210> 1729

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1729

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aatactctgc gcttcgtcat aggccttcaat acgcgcgcgc agctgctgcg aagagagcgc 60
cttacgcaat acgctgtcga atttcggatc gcaccagtgg gcgagggttg tctgcgaatg 120
aattgccgcg cagctcagta acggacggaa gaaactgtcc gggtcggttac tgtccgtcgc 180
ccaaccgat aacgtcagat catggctcat atccatcaac cgcgcctcct gaaagcgacc 240
ttctaccggc acaatcacca cttttacgcc aacctgcgcc atatccgcct gaatcagttc 300
ggcagttttc agtggactgg ggttccacgc ctgcgaacgt gtggggggccc ggtacccaat 360
tcgcctatag tgagtcgtat tacaattcac tggccgtcgt tttacaacgt cgtgactggg 420
aaaaccctgg cgttacccaa cttaatcgtc tgcagcacat ccccttttcg cagctggcgt 480
aatagcgaag agcccgaacc atcgcttcc aacagttgcg cagctgaatg ggaatggcaa 540
ttgtagcgt                                     549

```

<210> 1730

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1730

```

gaaagggatg gcgtcttatg ccctaatatg gcctgtttcc agtattatac aacagacaat 60
ggaaggaaaa agattagaaa attacgattg gggtcgttgt ttacgattca gtttatacgg 120
atgcctatgt actgctccca ctctgtatgg ttgggttcga ttatcaagtt caatttgcc 180
acacaataat tttaggacag ctgtaactaa agccctcatt gaacaagtta catatggacc 240
attcgtctct gccagtttct tctttggaat gagcttgatg gaaacacata gtgtggacga 300
agcagttaaa gaagttaaag ccaaattttt gcctacttat aaagttggtg tatgcgtatg 360
gccgtactcc aaacaatcaa tttttctcta gtaagtgaat caaacagggt accttttgca 420
gttgtgcagt ttgatgtgga catcattctt ggcataatg aaatataaaa atgcccgatg 480
gaatcgccag caaacacggc aacagcctct tgggaaaaca atcaacgcct ctaaccatct 540
ttgataagt                                     549

```

<210> 1731

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1731

```

aaacgcctgt aacgctggaa gccttagccg accaggtggc gatgagtcca tttcatctac 60
atcggttggt taaagcgact accggaatga cgcctaaagc ctggcaacag gcctggcgcg 120
ctcgccggtt gcgcgancg ctggcgaaag gggagagcgt gacnacgtnt nttnttaacg 180
ccgantnccn gcaggngnca gttctnntcn aaaattncan aannctnngc atgnnaggta 240
nanannttcc nnnccggggg gaaaaaatgg gggggngcct tcgctctgtn ngnttgngat 300

```

cnggctcttn ccctggnggc aaaangngag cggatntttg cgntatnttg gtggcccgnc 360
 cncantccnc cttatngnga gtcatatnac aatacagngg ccgttttcna cagcgtggan 420
 agngaaaaac cgggtgnncc cctattagcn tgtngaant cccnttttcc gntngggata 480
 ataaaagggc cccccactgn ccttttcna attgcccccc natggggaan gggaatttga 540
 gggttattt 549

<210> 1732

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1732

caacgcttgt ggaantgcaa tccaccaaatt ttgaatgcc acttgctcca gttggagatc 60
 cgaacatgaa ggttgaatgg ttcctaaatg gcaagccttt acctcacaaa aatcgtttca 120
 cgccgatata tgactttgga tatgttgcta tgaattttgg ctgggtctac cccgaggata 180
 gtggagagta tttatgcaga gcaacaaatc tttatggat ggatgaaact agagcgatta 240
 taaaaactgc tggtagacca ggaatcatat atgattcaca acttcccaaa catatgaaga 300
 gcattgaaag aattagggag atggaagcag cttggcaaat tgtgccggac gaacctgatg 360
 aagaatctaa acctaattgtg cacctgtgtt tgtagcaaa ccagaccctg ccaacggaag 420
 aaggcgaatg gctagattct gctgtagagt acaggtcatc cacgtcctan agttatgttg 480
 gtagggtaat ggtacactga gtcaacggtc aagattaaat tacatatgat ggnatgttca 540
 catgnttn 549

<210> 1733

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1733

aagttgtcga catgcttgca ctggatgccg atgttgatg cagatgtgcg ggtggaaata 60
 atgctgggca cactgtagtg gttgaaggca ctgaattcga tttccattta ctgccagcg 120
 ggataatcaa caaagactgt atttctatta ttgggaatgg tgttgctatt cactgcctg 180
 ttttattgag gaattggaaa aaaatgagaa gaaaggtcta agtggttggg aatctcgtct 240
 tgtaatatca gatcgggcac atcttgatt cgacatgcat cagcaggtcg acggcatgca 300
 ggaatcagaa aagggtggat taaccattgg cacaacaaa aaaggcattg gtccgacata 360
 ctcttctaag gcaaccgta atggattgag agtgggtgat ttattgggag attatgattt 420
 gttcagccga aaatttaggc agtggctgct ttgtccaaaa atgtttcaag tcttgaattg 480
 ccgtggaagg gaattgaaag natcgcnatt tgcagcaatt ggcaccnttg taaggatctn 540
 atcgatttn 549

<210> 1734

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1734

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atgatatttc acaagcttta attccatatt ggagaaaaga ctgcatgaga aatgaactga 60
aatcccttaa gaaaacatta gatgacaaag atagaatggc aaaagctgct gttatgaatg 120
acattgttga gaaggtaaaa gaattgtgcc tttcaagtga atcagatgta tttgttaaac 180
aactgcaagc agattcaaac actaaagcct tagatgctgc tttaaaacaa ataaaattat 240
tgaaaccaga tgcatacagc atgtttttct ctgttgacca agacagtggg aaaatattct 300
gttttagcttc tgcttccaaa caagcaattc aaaaaggatt aaaagcaa atgaatgggtta 360
atcatataac aaaaatcata aatggtaaa gtggtggtta acctgaatca gcacaagcat 420
tggttagcaat atcgcaaaaa ttgatgagt ttaatagctg caaaagaatt tgcagatttg 480
aaatactgna aaatgntttt acttctgcat tgttgaaaca ttactatat cttagcattt 540
atccgtatt 549

```

<210> 1735

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1735

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gcaacaacaa cctcagaatt tacatcacca caatactagt cagcaacatc accatcaaca 60
acacagtagt aacaacaata tatccagtgc tggcaacatg aatccgcaac atgtgaatag 120
tcatctttct caccacagtc cattatcttc atccatgagc catcatcata caatgcacac 180
accttcgctg atcaattcgg ggtatcagca tgtgaaaaat gaacctagtg aatacgatta 240
catgaataat tgtcttcctg gaagttattt cacaggaacc agttttggtta ctcccctgag 300
tcattcacag agcagtgtg tagattccct gagtgggtac catcatcaac acaatgttat 360
ccaagccgct aaattgatgg caacttcttg aaattttggt ttgaaataag taaaaatact 420
aaagactaat aaaaaatgta aatgatatag aagtcaacat atttgactat caaaatataa 480
tgcaaaaaaa tgttgtgtga caacattgga tggcaagtag caaggcaata tcaagcataa 540
ttacataat 549

```

<210> 1736

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1736

```

atngaattgat ggcagttact gatcctgcat tatgtagaag agttgcttta agacatacct 60
gttttttagc agctttgtca ttatcagctc cttttctaga tgttactaat tattggtttg 120
ctgctgaaac gttaccattg aacggatact ttatgtactt agcttggaat ttttataaag 180
aatcgagacag taaaagttct agaaaactat ttagattttc actaattcat ttacctgcat 240
tgatgttatt atttttatta aataaaaagg aatggttttt tacgaaagac tcaacattgg 300
aaacaccttt ggatatcgat gaacacaata aaactcaaac aataagcaat aaacctgcaa 360
aacaacacagt tgttgtacct tcagctatct tagataaaat gtaaataata tataacaaaa 420
aatgttttag taaaaatag aacaattaaa gatattatga gaacaaaaaa aaaaaaaaaa 480
aacctcgngg ggggcccggg cccaatcgcc tataggagcg atacattcct ggncgngttt 540
acaccgctg 549

```

<210> 1737
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1737
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 .tgtaattttt atattgtatt tacagtatgt gaaggggttt taggcctttc tatttttagtt 180
 gcaataattc cgtactcatg gtaatgatta tTTtaaaga tTTaatataa tacaatgtta 240
 aaatTTttaa taataatatt tTTtataatc cctattattt tattaataaa ttgttattga 300
 ttggttcaaa caatattatt tataatatta tTTatttata taatTTtagg aataaaaaga 360
 attataattg ttaatattag attaaatttt ggttatgata ttatatctta tagattgaat 420
 ttattaagga tttgaattat tattTTtaata ttaatagcat caatTTtaat ttataaaaat 480
 aattataatt taaattattt ttattattat taatTTtTTa ttattaatat tattTTtacc 540
 ttagtcat 549

<210> 1738
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1738
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 aagcttgtaa taccctcaag tgctaaattc caaagtttcc atccattaaa ttttgtatct 120
 ccagcaattc tttccgctcg cacgtattca acaatatctg tctttcctcc taccagctc 180
 agaatacctt tcatgaaaag gtttcgttct ggcataagtt taatattttc gacaacatca 240
 cggctcatca gcctgaaatc accaaccattc tcttcaattt taggattgct tattttattg 300
 tggagcttat agaaccactc agccgttttt cgcttcaggc gtccatcagt tgagcggta 360
 gatcttttag caagaacatc atcagcacct gcttgccatt tttcaataag atgaggaata 420
 acctcaatcg ggtcttgtag gtcaacatca attgggatta tgcgcatccc gtaccaatt 480
 cgcccttagg agtcgtatta caattcactg ccgcgtttac aacgcgtgac tggaaaaccc 540
 tgcgtacc 549

<210> 1739
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1739
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 aactgcaatc atgtccgacg aggaagaggt ctacagtga gaagaggagg aggaggagga 120
 ggctcgtggag caaaaacaca cgaccaaagt agaaggcgat gcagctgctg gagaccaga 180
 attcatcaag cgtcaagacc aaaagagatc agatctcgat gatcaactca aggaatacat 240
 cttggaatgg cgcaaacagc gtgccaaagga agaagaagat cttaaacgcc ttaaggaaaa 300

gcaagctaag cgcaaggtat cccgcgctga agaagaaaag cgtatggccc aaaggaaaaa 360
 ggaagaagaa gaacgcagaa taagagaaat tgaagaaaag aaacaaagag acattgaaga 420
 aaagcgtaaa cgtctcgaag aagccgaaaa gaacgccagg ctatgcttca agccccaagg 480
 atgccacaag aaggggcccac ttccctccca aaagacagac ttcactgttt ctgccaattg 540
 aagaacaag 549

<210> 1740

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1740

aaggaaaagc tgtttttgaa ggtgaagcaa cttcagaaga ggctcttaag aaattcgttc 60
 aatcacaaatc gttgcccctt atggtagaat tcaaccacga gactgcacaa aagatctttg 120
 gtggagatat taagagccat ttattattgt tcctgtcaaa ggaagggtggg cattttgaca 180
 gctatgttga gggagcgcgg gaggttgcaa aagaattccg cgatcaagta ctgtttgtta 240
 caatcaacgc tgatgaagaa gatcaccaaa gaattttgga attctttggc atgaagaaaag 300
 aggaggtgcc tgctatgaga ttaatcaagt tggaagagga tatggcaaaa tacaaccag 360
 ctacaccaga cctttcagca gaaaatatta aagaattcgt aggaagcttt attgaaggca 420
 aattgaagca acatttatta tctcaagatc ttccagaaga ttgggataag aatccagtta 480
 ggtttagtca gctccatttg atgaagtaca ttcaattcag aaaagggtggg ttgnngaatac 540
 tatgctcca 549

<210> 1741

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1741

aattgtccat caaacacgta atacgttttc aactaaagaa cactggctgt ggtgttattg 60
 ggttattttt ctcggctcaa tcacggtaact gcaggggata tacgtcttag tcagttccga 120
 tgcaagcgcc cgactggctc ccggcattat tcttatttgc ctcggaatga tctgttacag 180
 catattctca aaagtctggc tactggcact ggtatggaga cgtacctgtt cgtagccaa 240
 cagaataaccg atgattcccg tcttcacctg cctgttttgc cttttcctgg catcgtttct 300
 tgcggaatg gcgcagaccg acatgggata ttttattcct tcgcgagttc tggtcgggtt 360
 gggagcggtg tgctttacgt tgttctcaat cgtttcaata ttagaagcgg gttctgctaa 420
 aaaataattg caacgtaccg gataaaacca gcgttgacca tttgcgtaac gctgggtttt 480
 cttaggcatc atgaaataac gcacattaat gcatagtggg aagtataaaa aacagcaagt 540
 actgttttt 549

<210> 1742

<211> 233

<212> DNA

<213> Ctenocephalides felis

<400> 1742

```

tcacggtttt agaaatggaa gtaggatcaa tatcgatatg cagaacagtg gcatttgggc 60
agtactttgc cagattgttc gtcgttcggt catcaaatcg taccgccgacg gcgaaaatca 120
catccgcggt atgcatcgtc atattggctt cgtaggtacc gtgcattcat caccatttgc 180
tgcacccgca gagcgctaag gcgcagttca ttcattctggt taacatactc aag      233

```

<210> 1743

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1743

```

aagtcgctga acataccaac ctcgaaacgc actttatcga ttccagcggg ttaatctcct 60
gggacctgtt caagcaggat gccgattatc cgtttgtgga ctggaatttc tccggcacca 120
cggagaaga gttcgccaca ctgatggcta tcagaaaaag gccatctctc agcgcctctg 180
aacaagggtc ccaatgctga gatagctgaa gagatggcgg cccgttttgc ccgttgctgc 240
tgtgcgaatt tatccgcagt gtgaacaccg ttggcaaatc ggcattcgtg gaggccgtcg 300
gtcgggcgag cgatgatgag gaaggttacc tggatttttt caaaggcaag ataaccgaat 360
ccgttgaatt acatcacacc ccgcgagagt cgaatcaacc aattttgttt tttttacatt 420
ttatacaaaa ttataacta agtatataag tggtgtatgt ggtttgaata ttaaatgcag 480
tatacctttt tattaggaaa ctacaaacat tcttgttata gataaaatat aatttaaata 540
tntgttgaa      549

```

<210> 1744

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1744

```

aacacgctgg ctgacaaccg cacgggcagt cagagcaccg ttgctgttga agacttcaat 60
ccagtcgtta tcggcgatac ccagatcttt ggcacggtct tcaactcaacc agaccaccgg 120
accaccgcga cctaaagtca gcatcagcag gttgtcgctg taggtggagt ggatacccca 180
cttctggtgc ggcgtcagga agttgagcgc tttttcctgg ttgccgttgg atttctggcc 240
tatcacttct ttcaccgaac ggggtgctat cggcggacga taaaccagca ggctttcacc 300
gaaatcacgc atccactggt gatcctgata cagttgctga cgaccagaga gcgtacgcca 360
tgggatcagc tcgtgaacgt tgggtgaacc ggcgttgtaa gaaacgtggt catcttcaga 420
ccagaccagg tcgggctgga gataattttg cgcggtgtg cctgaatata gcggaacgga 480
tcttctcgtc ttnttattca gcgccagatg cgtatggcac gaccggnaat tcgttnaggc 540
agccaagct      549

```

<210> 1745

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1745

```

ccgcggtggc ggccgctcta gaactagtgg atccccggg ctggtacttt gccaaactatg 60
acccgcgtat gaagagatcg cgcataaagc cgagcttttt cgccaacaaa cgggaattgc 120
accgtttatt gtggttttac ccgacattaa taatgaagcc agtctcagac aaaatggtaa 180
agcgatgctg gcgcatgcgt catcttcatt gagtgatgta aaaggaagtg ttctgttact 240
atttactacc cgcaaccac ggtaattat gatcaccaac ggccagggtg aaagtggctc 300
ggacgataaa catctcggcc ttctgataga aaatcacacg ctggcttatt taaatgcaga 360
tctctggtat cagggaatca ataatgcatt ggctgttcta caagcacaga tattaataca 420
atcgacgccg cactaacgta ttatccgcat ccaggcgcg gctgcacgac ttgttcagcg 480
gcatggtgcc gtatttatcc agcgccagcg agaaacctgc tccgtacctg ngtgccggaa 540
gccagatgc

```

<210> 1746

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1746

```

aatttctatc gttatacgaa aagataatca attccgctag ccttaacgcg tgaattattg 60
tcttatcaca acttatcggc aggcgctttc ccgcctttcg ggtcaaggcc cgcatactc 120
ctcaagaata gtttttatcg cttccccgc cattgcagct gttgcacaga gttgttctat 180
agagtgcgcc tctcgtgcct tcgcagaaag cccagacatc acgggtactca taaaatcagt 240
cacacattgt gcgcgttggt gatgccgcct ggcatgtag tcataaatgg tcgtttctgc 300
ggcgtgataa tattgaacgg caatatcacg cgcttggtga tcatgactat gaataccttc 360
aagaaccata cagccagcgc agccgccgtt ttggctatat ctgcgcgccg cttcttttaa 420
tacctcaacc aggcactcgc ctaccggacg atcatcacga agaatatcgg caagcggaat 480
agcttccgta ccgcgtattc attgagtcac ggtaataaac cagcttactg caaaaccggt 540
agaggtcgg

```

<210> 1747

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1747

```

gaaataatga gagtatttta atatcatcac aattacaaat acgtttggca aaatgattaa 60
taggtttaaa tatatttatt ctaatacaaa taagttaata aaaaatacaa gttttcaaca 120
aacaaaacga agttatacga tgcaagagg tgcatagat ggcaaggta aaactgtttt 180
gcgtttatta aatcaagatg ccgaaatggg cctgatgatt aattcatata gtcaagttgg 240
ttttccctg aacaatgggt tttcagtaat gggctctgta gcgatatttc ccaggactgt 300
tctatcatgg aatgtaggaa atagtgaaga cataaatgag gcttcattat ctttatttta 360
taccttagat ccaaaattgg atgttcttgt tattggtata gaacaagaaa gtgttaatcc 420
caagttaagg cagaggatta tggaaatttt acgccaaaa gaattaatgn tgaagtttta 480
cctactgtgt tgcatgcact acattaactt tcttatgcaa aagccagcg tgctgggcat 540
attccctt

```

<210> 1748

<211> 137

<212> DNA

<213> Ctenocephalides felis

<400> 1748

```

accaaccatg acgacacncg atgcacccctt tcttctcctg atcgaaggca tcgaaggcat 60
tcttgagtag ttgatttga tccttgtcga gctcctccat tgttactgta gatcacagac 120
gacgctttcg tnccttac                                     137

```

<210> 1749

<211> 193

<212> DNA

<213> Ctenocephalides felis

<400> 1749

```

actgatttta tacgaaatth atagattaaa atcaacgtgt attaatthtc tgtcaattat 60
tgatcaatac ataattattat aaaattgttg taaatcatta tgttacataa tatatataaa 120
gtcttgthtt aacttattta taataattat aataaaaaa taaacatcaa aaaaaaaaaa 180
aaaaaaaaaa aaa                                     193

```

<210> 1750

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1750

```

accaagtgtg gccaaagaca atctttattg aaatggtaac aatcataggc gcacaaaaaa 60
tccaactnca gataattatc taattatttc ttactagggg gtttgaattc aaatttacgt 120
gatttaagtg ctgtccattt gtgtcttttc agataaaaagg ccaatgcaaa aagcattgaa 180
aagattccaa tagccttaat gggtcatttc ttacgatcat catgttcagg ctcatatgcc 240
catttcaaga atgtagaaac atctttggcg agttgactgg cagtggctgg cgttccatct 300
gaatattcca taacctcatt atacaatgct tgagccatag aaatggctcc ccctgggaaa 360
tatggattgt aatactgcct tcccttagaa ttacacctgc tgggtgggtct gtgtatccag 420
tcaggagtgc aaacaagtag tcttctcctc catgacgagc caatgtaata aaactcaa 480
cangtgaaa agccattat                                     500

```

<210> 1751

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1751

```

acataaagc gaattthttt atatatatct tcaaaaagaa aatatccata tttttgaaac 60

```

```

aatttaataa atttctgttc ctttaatat tttatcaatt catatgactt agttatacaa 120
aataatcata tgttacttat aaacatgtat catagaagtt ttacatctga ctctgattgt 180
tataattaat aaaataaaaa aaaaaaaaaac atacatacag aagttttaca ttttattaca 240
aaattaaata cataaatgta tataactttt caaaatttta ttataaattc atagatgttt 300
ttcatgttta attatgtgtt tctaaccaat cggttttaat aaaaattata agaatgtaga 360
tattgtagta aatcgaacat ttctgttctt catctacaag atacaataaa tagaaattat 420
aaatagttat ataataattt tgcattttta atgaaaatca cactgtgtat catagtagca 480
cttccaattt tgcaacaata                                     500

```

<210> 1752

<211> 252

<212> DNA

<213> *Ctenocephalides felis*

<400> 1752

```

acttgaacaa ttcatgatac ttctagttaa aattttactg ttagctgcta ttatatcttt 60
cgttctcgcc ctttttgaaag agcacgaaga ttctttcact gccttcggtg aacctttcgt 120
cattttactg attttaatcg ctaacgctat tgctcggtgtt tggcaggaaa gaaacgctga 180
atcggctatt gaagctctta aggaatatga accagaaatg ggaaaagtcg tccgtggcga 240
taaggccggt gt                                     252

```

<210> 1753

<211> 265

<212> DNA

<213> *Ctenocephalides felis*

<400> 1753

```

cttcttataa ccatgtaatt ntctacacat aatgattatn ttatttattc acgatataca 60
acanntgctt ttttcttgag tgttacgctc tgctttttct atctcgacta acaaagcatg 120
gaatatttca gctactgact cattttgttt ggcagatgtt tctaaaaatg cggctttcca 180
actatcagct aatcgtttac cttcatctgc acttatcatt cgntccatat gtaaatacgt 240
tttgttacct actaacacta caggt                                     265

```

<210> 1754

<211> 305

<212> DNA

<213> *Ctenocephalides felis*

<400> 1754

```

actacatcaa aatgtgtgct tttcctaagc agctgcaata cccaaagcag caccagctgc 60
aaatgctcct ataaaaatat gtatttcttg caatttaaatt tcttcttcac ctgtaagacc 120
gtgataccat tttttggctt ttctttgatt tttctttagc aattcctctg ctttgtcaat 180
tttcctatca acaaatctct caattttatc cattaatttg ggagtttctc cagtaacagc 240
ctcttcaatt ttatctgtca ccttatcagc ctttttagtt actttatccc agtcaataga 300
aatgt                                     305

```

<210> 1755
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 1755
 accattatat aagtcaggaa atcgtcaatc aacagcaaac tacagacca tagccatact 60
 gccaatatatt tcaataatta tagaaatggt gtttagcatta agaattacaa gtttcttcga 120
 tgctaataat tattttgtaa aaaatcaatt tgaattcaaa aagaaaatta tcacaattga 180
 tgctgtgcta gactttttga actttatc atc aaattcactg gaagatcata aacactgtgg 240
 ggcaactatatt tgcgatctca gcaaagcatt cgattgtggt ccacatgaca tatttctcag 300
 gaaactggaa tattatggat ttagggggcgt agcccttaaa ctgatgcaat catacctatg 360
 taacaggtat caagtttgtg gaatggaaca ataaacgaag tgagatagca agattaaatg 420
 caggcaatgc ccaagggagt attcttggac cacttctttt tatcatattt gtgatgatct 480
 accaccgaac attagctgca 500

<210> 1756
 <211> 486
 <212> DNA
 <213> Ctenocephalides felis

<400> 1756
 acggtctatt aacaaatatt ctgaaatcaa aatcaaacta atagcggcaa gatctcgagt 60
 agcaccatta aaaaatatta cgctccccg tctcgaactt tgtgcggcac aattgctagc 120
 aaatcttgcg caaataacta aacgtgcatt aaatatcgcg ttgataaag aattctattg 180
 gagcgattcc acaatcactc tttcgtggat aagatctcca tcttataaat ggaaaacctt 240
 cgttgccaat agagtttctg atattcaaac aaaaaccgac gcaaataact gggtacatgt 300
 ccgatcggaa gacaatccag cggacctcat atcacgcggg tgctatacac atgatttatt 360
 gaattcatcc ttgtggtggg caggcccatc ttggctacaa aatccaactg aaacacagcg 420
 acgtgcaact gacaatattt caattcctga aactgatgtc gaaagtcgaa tcacaagttt 480
 gacttg 486

<210> 1757
 <211> 500
 <212> DNA
 <213> Ctenocephalides felis

<400> 1757
 accactgact cctgaatggt aaaaattaag tcgtttattg atttatcgat atcttcttca 60
 tttttcaatc gcaattcaag atttggtcgt tcatttagtg tgttgcgaaa ttttttccca 120
 atttgtgaat ttattataaa gtattctggt gttttttata ggaattggtg caattcctat 180
 tgntagaatg attggagaat ggtcggatga taaatcaaaa gatgggttta tttcaatggt 240
 cttatcatca atatcctttg taatgaagaa attgagcaga tccgggtattt tattagtatc 300
 gctcggccag tatgttgggc ttccagttga tatgtaagag agattgtttt tatctattgc 360

atttaataat tccttgccctc tagatgtaat taatcgagaa ccccatcttg tatgtttgca 420
 attgtaatct cctcctacaa taaattttgg gcctagttgt gaaagaaaat ttctgaaatc 480
 aatctgttaa tttatgtcgt 500

<210> 1758

<211> 270

<212> DNA

<213> Ctenocephalides felis

<400> 1758

acatgaactt aatcctgatt ttaaaccacc aaaaagacca tttaaaagga tggattatgg 60
 tgctgccata aaataacttga gagaaaataa tatcactaaa gatgatggaa cattttatga 120
 atttggagag gacataccag aagctccaga gcgcagaatg acggatgcaa tcaatgaacc 180
 tataatgctt tgtcgttttc cagcaggaat taaatcattc tatatgtcca aatgccctga 240
 gaacaaagaa cttactgaaa gtgttgatgt 270

<210> 1759

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1759

acatttttac atttttaaat ataatacaac cttatataag tatcacacca tcttgtattt 60
 atgaaaatag tctcgcaaac tcttcgaagt tgatgcgtcc atccttgtcc gtatcggcca 120
 acgtcatcaa ctcggtgacc tgctgctccg tgacattttc gccgatcacc tccatggcgg 180
 ttcgcaattc gtctcgggaa atgtatccat taccatctcg gtcgaacacc ttgaaggcag 240
 atcgtagatc tttattgaca tcatcgttgg agtctgaatc tcccccttgt ctttgggttc 300
 cgccttgcat tgctgaact gcttgaatct ttgcgatcca ttgtaaaaac tcgggtctcgt 360
 ctattaatcc gctaccagac tgactagcgt ctttcatcag atcttgaata agttcatccc 420
 tcacgtggat tcctagattt tttaacataa attgcaaccc tgaagccgta catgtccatc 480
 ctgggtgcgat ccagcaaccc 500

<210> 1760

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1760

accaccgtct ggaccgctag gatccttgat ttctagggtg agttcaaata cttcttcttc 60
 tacatctacc gtctgtatct taattttact cgattcttta acgactgtgg ttccgcgata 120
 ccaaacgaca tcaggcttgg gcttagcttt acatttacat ttcattgtta ttaacgagcc 180
 tgtttcatta ggaataattc ttggtttttc gatgaacgtt ggcgcgtatc ctgcagcatc 240
 atcaccgctg tcgaagtcca agctgatagt cgcattgctt tctccaagtt cattctttgc 300
 agtcacacga tatttgccag catcctcaac agtgacattt ttaatctcga gtgaagcaaa 360
 gtatgaatga ccacttttgt caaccatcaa cttgtgtcct ggtgagtcct taacagggtt 420

ggattattgtga aaccaagcga ctgtaggttt aggatcagct tgaattcggc attcaaagag 480
 caaacgtttg catcatctct 500

<210> 1761

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1761

acctaacgat caattcatta cagattactt gaatgacggt aatttcatag actagcccat 60
 tccaaaaatt aagtattctg aagtgtctta cgagattagt aacactaaat tggtaaaaac 120
 acttggtaat gatgcatca catttggact aataaaacac cttcctgata aaggtaagag 180
 atttttaacg atattattga atgccataat acggctgaag catttttctt catcgtggaa 240
 attggcaaaa ataattctaa ttctcaagcc tggaaaaaat cctactgatg cagtttccta 300
 ccggcccat agtcttctat cttgcctctc acattttttt gaaaaagtta ttcacaaaag 360
 aatcattaat attttagaag ataataattt tatgccaaaa catcaatttg ggttcantta 420
 gacaacactg agcaaaagaa caaatacaca gagtagtgga ttcatttata aagcctttca 480
 cttaaaaaaa atggtcagcc 500

<210> 1762

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1762

acgggttgat cttagcagcc tcagcatatc cttttttcca catcctgttt ttagcttcaa 60
 aataagatat gttatgtagt gccatcattt cttttatttc tttatttgct ttgaagaatt 120
 tacattcttt gtcgtttgct tgatggtttc catggcatac tgcacatata aagtctgaca 180
 cgatatggca attttcatga gagtggttct ctgaacaata tcggcatctt atcttgcttt 240
 tgcattagtt ttttatatgt ccataacgcc agcatttttg gcattgcatt acagattgaa 300
 tgtaaggacc tacagcacac ctaaccgaat acattgaaac gtattctggc agatagttac 360
 ccctgaacac tatttttacc atttgcgatt tcatatttgc ttattctaag tttttttaat 420
 gcatttgacc tctaattttt tgatatccga tctaataaca tccatgattt cttgctcgtc 480
 atgtcgggtt caacgttaaa 500

<210> 1763

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1763

acctgggcaa aggtggagaa gttgccaaat taaccaaaga agcaatgaaa ggcagcatgt 60
 ccttccaaga agctctcaca aaacgattag atataatcag accttcacaa cagaatattt 120
 cagacttcac caaagatcat ccatcaacac tcacacctgg aataaaaaac ttaattgcat 180
 ccttacatcg gaaaagaata ccagtatatt tggtagtgagg aggttccga tcaactcatag 240


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aacctgtggc caaagaatta ggaattccat atgaaaatāt atttgccaat agaatcatat 300
tttattataa cggagattac gctggatttg atgcaactca accgacatct cggctctggcg 360
gcaaggggca agttctagcg ttgctgcggc agcaaaaggg ttacagacac attgcaatga 420
ttggtgacgg tgctacagat ttagaagcac aggctgatac tttcataggt tttggcggaa 480
atattgtcga gaagaagtca                                     500

```

<210> 1764

<211> 315

<212> DNA

<213> *Ctenocephalides felis*

<400> 1764

```

ctcgtgttat ttttttaagt tgtatTTTTT tgtttagttt taattttata aaatgtgatc 60
ccccgactgt aactttgccc cagggcgaat tggttggaaa agctttgacg aacgaaaatg 120
gaaaagagta ttttagctac acaggtgtgc cttatgctaa acctccagtt ggagaactta 180
gatttaagcc tccacagaaa gctgagccat ggaatgggtgt tttcaacgcc acattatacg 240
gaaatgtgtg taaatcttta aatttcttct tgaagaaaat tgaaggagac gaagactgct 300
tggtagtaaa cgtgt                                     315

```

<210> 1765

<211> 500

<212> DNA

<213> *Ctenocephalides felis*

<400> 1765

```

acccttttaa gtgaaagatt atgtatttgg gagaaggctg cagatttaat ggccgggtgtt 60
tatagacaag aattaaatgc tgcaaccatg ttaggacaat caaaaacagt cattcaagct 120
gaaattgatt ctgcagctga attgattgat ttcattagaa tgaatgcctt cttcctgaag 180
gaattaacta aataccaacc aattagcgaa gatttgagtg ttacaaggaa ttctatgcgt 240
ttccgaggta ttgatggatt tattgctgct gttagtctt tcaactttac cgctattggt 300
ggtaatttgg cctatacacc agctttaatg ggcaatgggtg tattatggaa accatcagac 360
acagctttac tgtcaaattg gatcatattc aagatcatgc gtgaggctgg tcttccacca 420
gggtgtgtca actttatccc ttgtgatggg cctgtatttg gtgacactgc actgcctctc 480
tcatttagct ggcattaact                                     500

```

<210> 1766

<211> 456

<212> DNA

<213> *Ctenocephalides felis*

<400> 1766

```

accacgtatc taatataatt taaaacttat ttgagttatg taaatcaata atctcaagta 60
taactggcaa attaagattt gtagaaaaat aaccaaagta atgcgacaaa cctttacatc 120
acaatgcttc taggttgga tttgtttcaa tggtaactt tttctcctga ctcatctcat 180
atgcaaccgc ccttcagct tgatataatt gtgttagtcc aacaaacata ttaacagcaa 240

```

acaaactcca ggttttttga attatgacta aggagtatct ggcccatagc aatccagtta 300
 cagccaatga tcctgattgt ctaactgata gttgctcagc tggcctggat aaatctccta 360
 tgccagctat aaccagaccc catttaaaaa gaggtgccca aaagaagaca gtttttggac 420
 ctgtggtgaa ttccataacg gtaaagccga ttttgg 456

<210> 1767

<211> 500

<212> DNA

<213> Ctenocephalides felis

<400> 1767

acgcaactaa tgcaatataa atttgtttca agtcaacaat ttaacaccaa aaacaataat 60
 agatcaaaat ggtcctttca aatagctgat ataattgata atgtttgaga ttaggttata 120
 taaaagttga atgttttttg attctttaat aaaaatatcc atcactgata taactaaatt 180
 acgcagtaat cataattaga attatgtctc tagcaacagt tattctttct cagcaatagc 240
 ggtcaagtga acatctaatt ctgcctctgt caaaacccta aatttaagat tttctttcgt 300
 aaccaccgca acctcaattt ctgaagggtt gaagtcaaca cataaactg ttgataaaca 360
 tgaaattgcc aactggacag cttcatcaaa tgtataatcc tgtttcttct tcagtttttt 420
 ctcaagatat ccattggcct cagtttgctt tacaccaca ctaatggctc taaaaccaca 480
 gcagtaacca gcaggatctg 500

<210> 1768

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1768

gataaacgat cacctaaaaa atacggtggt aacttagata caactggaag tccttccaga 60
 tctcgtagcg ctaccaaaga attaatattg ccccagatg attctctaatt gtgcaaacca 120
 gatttttaca ctcctttaaa agatagatct gtaaaagatg gtgatagttt aacattaaca 180
 tgtaccgtta aggttgaccc agaaccacaa gtttcgtggt ttaaaggcgg caaggcattg 240
 agttcttccg aaattatgga cttgaaatat aaaaatggcg ttgccacatt atcgataaat 300
 gaagtattcc cagaagatga aggtgtttat gtttgtaaag ctaccaattc aattggagtt 360
 agtgaaacaa gttgtaaatt aacggttaaa ccaatggcaa acggcaagggt gtctaagaaa 420
 gctcaggaga caaaccacct aaaatagtga gtcacttaga atctaaatac gtcgaagatg 480
 gacacccgca cgttatcttg tagatataga tgctgagaaa tcatgtcgct ggtgnacata 540
 ccaagaaat 549

<210> 1769

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1769

aatcaccgct gtaaccaatg cgcgagttaa tctcaaaagg cgtttcacct tttgcatat 60

```

caaacagtgg tttgcttact tcgttattaa ccagcgtggg ttgaattgat gccatcgacg 120
ggatcagggt cagtttttta agctgggcaa gcgggaagg accatgatca accgattcgt 180
tgaagatgac gctctgaccg cttttaatcc acggattttc tttcccggca atgggtttca 240
ccaacagttg caactggctg ctgaatacgc cgcgatgata gttttgataa ctcaattcca 300
ggttggattc aggagctgtc agtttgagtt gcgcgttcgc ctgcgcgacc atgtcttcga 360
gatgggtttc aatcttcttg cctgtatacc atgcgccgct gtccagacta cgcctagcgc 420
aacaatgacg cctaccgcta ccagcgattt attcataatg attatcataa aatgaaatca 480
ggcggactgc cgctgaagggt gtataagcct ttaataagct tacaagagat gtaatttttc 540
agtagctct
549

```

<210> 1770

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1770

```

aaggatggag tcaactgtagc gaagggtatt gatctcaagg acaaatttca gaatattggg 60
gccaatttag tccaagatgt agctaataac accaatgaag aagctggtga tgggtactact 120
actgctactg tgcttgccag agctattgca aaggaaggct ttgaaaaaat atctaaagga 180
gcaaatccca ttgaaatcag acgaggtggt atgctggctg ttgatgcagt caaagaatct 240
ttgaaaggaa tgcgaagcc tgttactacc ccggaggaaa ttgcacaagt tgctaccatt 300
tctgccaatg gagacaaagc tattggaaaa ttgatctcag atgcaatgaa gcgtgttgga 360
aaggaagggt taataacggt taaagatgga aaaactttac atgatgaact tgaggtcatt 420
gagggcatga agtttgatag aggatcattt caccttactt tatgaattcc agcaaagggt 480
ctaaagtaga attccaagat ctttattttg tcagtgcaca aaaataactca gtcaagcata 540
ttctgcttg
549

```

<210> 1771

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1771

```

gctcaacgag taataatggt cagagcgaaa tattgttttt aaaaaattac gtcatacaaa 60
tatcgaatta cttttgaatc taaaaatata cctggtgaac atttttgata ttaagacgtt 120
ttacatcgaa atttttaagt ttgcattttg gcgaaaatat ttgttacgtg ttcgttacgg 180
aagtttgctt aaaaactctg gtgaattttg aactcaaaat agtgtctgtt ggttttttta 240
attgttgtgt tgccgtgcgg gtgcgcagaaa taaattggtg atatggcaca attaatatca 300
gttcgattaa atcgaggaga tgcttgctcg tggggattca gactccaggg tggcaaagat 360
ttcggcactc ctttggttat tcagaagggt aacagcggaa gcccgccga gcgagctggc 420
tgcaagcagg cgacgctgca tcaagggtgaa taacacagac gtctataatc tgagacacaa 480
ggacgcgcaa gacgcctcgg cgcccgga tcttgagggt cagtcaaaga ggtggatcac 540
atggcaccc
549

```

<210> 1772

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1772

```

taagaaagtt gctgaagaat ttaaagaagt tttagacacc ttattgngga atgatgaata 60
tgggtgtttgg atggactacg attcagaaaa tagaatatcg agaccttatt tctacccttc 120
gaatcttgct cctttgtgga ctcaaagtta taaggacgtt gagtgtggga gtggtaaaag 180
tttgggagta gacaagaatg tgcaggatag gattgagagg gttttgcggt atttaaatag 240
tccagatgta gcaataaaaa gctaccaggg tgggtgtacca accactttat tgaatacagg 300
agagcaatgg gacttcccaa atgcctgggc acctcttcag catatgggtga tcctgggatt 360
ggacagcaca gataatcagg aagctaagga tttgtcattt gatctttgcc agaaatgggt 420
ccgatcaaat cataaagctt acttggaac gaatcatatg tatgaaaagt taatgcacac 480
atgctggggc accangaaat ggcggagaat tgaggccact tggtttgggtg gcgaatggtn 540
ctattagac                                     549

```

<210> 1773

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1773

```

gccgtattcg cagacttata aattagtcgt cgtgggcgga ggaggcgtcg gaaaatctgc 60
aataactatt cagttttatac aaagtattt tgtgacagat tatgatcca ccattgaaga 120
ttcatcacaca aagcaatgtg tcatagacga catcccagct aaattggaca tcctggatac 180
tgccggtcaa gaagaattca gtgcaatgag agagcaatac atgagaagtg gtgaaggatt 240
tttgctcgtg tacgcagtga cggatagggc tagtttcgac gagatgtaca aatttcacag 300
acaaatctta cgtgtcaaag acagagacga atttccaatg ctgatggtcg gcaacaaagc 360
agatctcgag acgtctcgcg tgggtgtctgt tgaagaggcg caaaatttgt caagacaatt 420
aaaaataacct tacatcgaat gtagcgctaa attgagaatg aatgttgacc aatccttcct 480
gactagttag aattgcagaa gatttcaatt atcagaaagg cagatccaat taaatcaatt 540
ataggataa                                     549

```

<210> 1774

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1774

```

aattattgcc ggatgtctgc tggatgatgt gccagcgatg ggcctgttct atgtatccga 60
cctgatgggc ggtgcgaaaa acctgctgat cggtaacgtc atcaaggctc agttccttaa 120
tattcgtgac tggccgtttg gtgcagctac cagcattacg ctgactatcg taatgggcct 180
gatgttgctg gttactggcg cgcttctcgt ttgctgaata agaagggtga actcgaatga 240
tcggtcgact gcttcgcggc ggttttatga ccgctatcta cgcgtacctg tatatccacc 300
atcagttcaa gacgacgcag cacctccggc cgggcatcat cctccgtcat ggcacagaga 360
aaatcattca gcgtccccgg ttgtgaatct tcatacacgg tgatgggtccc ggcgtgcgat 420

```

ggtgaaaaac cgtcaacctg caggatgaca ctgtctgacc gtactccaca tcatgctgta 480
 acgcccggct tatccggatc ttgacccacg tgttcaccac caccgtgggtg ctgtacgtct 540
 ggtttactg 549

<210> 1775

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1775

gaaacgagtc gcatagtgc cttctgaatg tgacataatc ccaaagtcta aataacaaaa 60
 atactattta gatggagagt gctatccctg acgtatacgt gaattgatac gtgcaccttt 120
 tactatcaag gtgatacact cgtgcatcaa gtgataaaga gtgcctgcaa tttattttta 180
 ttttagtttg tccgtgaatt gtgtttttcg ttgtgtaacc caagcgccaa agtaacgccg 240
 aaacagacat ggaggaaata ttacaagaaa ttaggactat aaaattcaca cgggaggaag 300
 tggaatcggt gatttactgg cgttgtccgc gtaagtctgg catcgtattc ggcgtgtccc 360
 tcgccctgct gctggcggtta tcatgcttct ccctaatacag cgtgttagcg tacgcttccc 420
 tcacagccgt ctgcccgtgc atggccttcg tatctatcgc aacgtattgc aagctgtcag 480
 aagacgtccg atggcatcct ttaaggagct gtggaaacag atgtcagtggt gtctaagaaa 540
 acccacagn 549

<210> 1776

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1776

gctgatggtt gcggatccgc tgagagcgga tatagtgcag aacgcagtga tgaaagcgat 60
 tgcgagacta aaaatttagc taatgattgt actgataatt tagataatga tgttgaacat 120
 gtaggtagtt cgaatgatat tgtagaagaa gatgagcagc tactgagtca caataatgat 180
 gtagtagaag acgaaattgt gaatgtaata aattcgattg aaatagaaga actctctggt 240
 aatgacatta atgaaataga cggcgtggaa gtagaagacg agactgatat tcatattaac 300
 aaagaaaaca gttgtaaatc tgattttaac acaacgcaaa ttggagatgg ctcaaataat 360
 gtgacagtcg ttgcaatcca gataaagaag gagcagatag cacacttgaa cttgaagcgc 420
 aatcgtgttc aagttctgga tcttttaata aaatctctaa tattgtaatg atgaaaaatc 480
 tcagaattta gacaaattga cacatgcaaa gacgataagt tgtgcgtgtc agacctctca 540
 tcgcgagtt 549

<210> 1777

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1777

aacgaagaaa aacaagatta aaattcaaca cggatcagct gtgtattgta ttatatattt 60

```

ggataacaaa gtatttgtat cgtttgcaaa tggcgatatt agtggtttaca caagagatca 120
aacgggttg aatacaaacg acccaacgac ggtgtgcgtt ggttcaaagtg tggccgccc 180
tactaagttg cttcccgctg ctagtcgatt gtggtgttcg gcgcataatc atatcaaaat 240
tatcaataca gaatcattac aagttgaaca aacgtttcaa gtcaacaccg atatcaataa 300
gccaataaca aatatgggta ctggaaattc ggggggtttg atatcgttgc aaaattccgc 360
agtttttaaa tgttatcatg caaatactta cgaatgtgtc tgggaagtaa tattgctccg 420
agtggttaca agatgttagc ggcttgcgat gatattattc gacaacataa agcagcgtgt 480
ttaagagtgc agcctgtagc ttgcaaagat tatatggata ggaacagtgc tggagtatat 540
tgcctccat

```

<210> 1778

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1778

```

atacgtgata aggatgacta cccatatata acattttgcc atgttattat atattttttc 60
atgctagctt catagaaatt tttcaaaatt aacattaaaa cattgttcat acatttcgtt 120
taataatatt tatgtttaaa actcattggc caccttaata aatgtacata acttattatt 180
tctttgcaaa tccagaatta ggacattttt ttcaagtatg tattatggct ctcaaaattt 240
agtttattct tatatcgggg tttattttcc tggacgggtt tcaaccgcaa tcacagatat 300
gatggacgtg gagccctagc ggatctccaa gcccatgaag ctatatcaca ttgggactac 360
aatgaaggac ttagtgatga agaaagaaga gcagaacagc tttgcgatga agagagggtca 420
gagcgttgta tgagcggcgg aagaagaaga aatatataaa gaagaggtaa tgaagagggc 480
acaacaacag atcatgtgaa agtnatggca agtgattca attatcagat gttgggtggtg 540
ggatgatga

```

<210> 1779

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1779

```

aattttattta atgatgagct ttttactcag taatataaaa tattgaattg ttattttttgt 60
gtgttggtta agataaaaag ccgtatttat tattacggct ttaattaata aaaggcaggc 120
tgtattaaaa ttaatattca aagcataaac cgatagccaa taccggtttc agtaatgaaa 180
tggcgtgggc ggcgggatcc tgttccagtt tttgtcgagc atgtcccata taaatacgca 240
aatagtgact gtgttcgacc gcgtttggcc cccacacctg gtttaaggagc tggcgtggg 300
tgagtacttt tccggcattg ttgagcagca ccgccagcag gcggaactca attggtgtga 360
gatgcacctc ttcctcaccg cggtgaatca cgcgggcggc taaatcgacg gtaacatcgg 420
aaaattttac cagcggatcg ggcgggtggt tggagagtgg cggcgtaatg cgactgctgt 480
acttcggcgt gcacaacatt gccatgctgg cgtattatcg cgtatgggat gctgcgtgat 540
ggtgaggtg

```

<210> 1780

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1780

```

ggtacacaat gtacgggtccc gatttatcca ttgattctgc aatatattca aatcttgaaa 60
gtgacgaact aaaagaaatt attcaggatg atgacaaatt tgaagaaata ttcaaggaat 120
tggcccaggt taaaaactgg gaaaatcaaa aggaagcaat gatagaaaga aataangctc 180
ttgccgaagc aaatctttta cgcaatcctg acttagctga aataaaaagaa aaattacaag 240
aacttttctga agaaggcaaa caattatgta ccagtatcca agaaatgctt gctgaaataa 300
aagaaaaatc tggaagtatc agtttgata cagctttagc tctgttaca acagcagctg 360
caacaagcga agaagaatct gaaaatatag cagatcaatt catctcacgt gatattgata 420
tagatgcatt tttagaacag tttgcatcat caagaaaagt tatgcatttg agaaaagtca 480
aagctgataa aatgaaagac ttcttnccaa agaaatagta gtatcaaata atcttatgtg 540
cctagtgtgta                                     549

```

<210> 1781

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1781

```

gatagttcat gctcgccggt ccgtgaaact accaaaaaca aaaaaaaga ataataaaaa 60
aaaaatcgtct caattgaatt taatcggacc gtactaaaaa aaaagaaact tattactgtt 120
attgttgcca taatttcgaa ccgaagaaaa ttaaattaaa tccaaacctt ttgtgtaatg 180
gcgtttttga gatcgtctat tcagtgtaat aatttactaa gaaagttcgg cataatacca 240
aacagtttgc aatcgtttgc gacaccgtgt gcgtctcata tacatggaat aaatacagat 300
tcttcaaaaa gtcaacatgt tgcaagccca gctcaagccc atgtacagaa agaccctttg 360
gacatatcat tcaacgatca cgttgcagcc ttcaaaagta aaaagacaag tgagctcggt 420
cgggcttcat cgtctatgca ctatgcacct cagaatatct tgtggaaaat aatatgaagc 480
taatgaaaat atccaaggcg atcttaggcg agaagctgtc acagcctaata gaagcttcgt 540
ctatggcnt                                     549

```

<210> 1782

<211> 326

<212> DNA

<213> Ctenocephalides felis

<400> 1782

```

aattgctcac cgtgtaaatc ttccagcacc gtcaggttga tgcgcgagcg acgttccgct 60
acttcctcgc gcagaccatc aagccctttt tccagcagca gcgggaaatt caccgccagg 120
tgcgcacgcg cggaggtcat attgccttcc gctttaatga ttccggtcgc cagcagacct 180
ttttgctcat cggtaaacat gccgtagcag cgatcctgtn cggctctgacc gcgccaccac 240
gggcacactt catgcagaac gcgtttgttc tcttcgctca ccgcaaagcc agcaccggga 300
cgatctgccg gatcatcaat ctcttt                                     326

```

<210> 1783
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1783
 ggaacatctc ctgaattaca tatgctaata ttgttttgtg attgtatgac acattatgtc 60
 acaataacttg atgatttgga aatgtatgag cagcaaaatc catttaaatt atctgatttc 120
 gttgtaattt caaatttttt gaatatgttt ttatataaag cgatactggg aaatctattt 180
 gatttgaaaa acctatcagg gtgtccatta tttgtgtcaa ttcatacttt gttattagct 240
 ttgtatagac gagattgtcg aagaccattt acaccaaact cacattggct tgctaaagat 300
 atcaggccat ctacttttat gaatgatctt gacaaaggaa aaaaaactac tcagggtgctt 360
 ttacaaaaaa tgccgcacat aataccacat gaagaaaggg tgcaattatt tagaaagtgt 420
 gtgtcaaatg aaaaggctgt gttaggttta actgaatcag catgtgtatc acccaaagca 480
 ctttgatact gtcatagaga cagaattgtg aagatggata tcacagctgc tgcgtgcaac 540
 catgcttaa 549

<210> 1784
 <211> 327
 <212> DNA
 <213> Ctenocephalides felis

<400> 1784
 agttgattga aaaggtctga tgtgcatgcc attgctgacc tgaccgngg cggttctctg 60
 gaaaacattc cgctgttatt gccagataat actcaggcag tgattgatga atcttccttg 120
 caggggcccgg aagtgttcaa ctggctgcaa acggcaggta acgttgagca ccatgaaatg 180
 tatcgacact tcaactgcgg cggttnggatg attnttgccc tgcctgctcc ggaagtggac 240
 aaagccctcg ccctgtctca tgccaacggt gaaaacgcgt ggaaaatcgg tatcatcaaa 300
 gcctctgatt ccnaacaacg cgtggtt 327

<210> 1785
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1785
 aatgttcac cagcagggga aataatgttg ttctggctat cggtcaccac cacgcccacg 60
 ccaggacgtg acgtcttaat cgcttgggga tagctggggt ctgtggttgc cgtcagactc 120
 aggttgacat taactaatcc cgctttccc gtgttacacc tgactggaat tgcaagttct 180
 gccgtctggc cccaagaggt ttatgcccta caacacggaa attggcagcg aagacatcac 240
 ctaaatcaac ttcaattgtc tctccggcat tgacggaaca tgagccaagt gaattgatcg 300
 taccagacag gtaatacact aaaaccggtg tacctgtagt cgtgcaggaa tcacctgcgg 360
 gtatgttgta gcattcatat aatcgcgcca gcgccatagg aggaatgacg accgagccaa 420
 cgaacggctg caatatttta gggaaaagct accgctatta ccgctgcccc ctgccactaa 480
 acgttgaccg cagggtcgaa attgcctcgg ttccccctg tgcccacgtt ttcaaggagc 540

ccggtccca

549

<210> 1786

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1786

```

cgtttacgtg gtggctctaa tcaggctttt gttctaaaat tttgctcagc tatatttctt 60
ttattggatt catttggcct gcaacttatt tagttttcaa agtatagtgg caggatagaa 120
cgtaatcata gaatttatga aatttttcat acttcttggc caaatctgtg gtgatgtgtt 180
aaatattttc aatacggatt agtgtatctg aaaatatata tttggcaaatt ttgttattaa 240
atatttagtt atcgagacg cacagtaata cgaagtagta tttaatgaat actcgggtact 300
cttatcacag gatgctattg tatgaaatgg ggttttagag tagtcacctc cgtctcgcat 360
cagaatgctc actaggactg tctacaaaga ttctggttta taatgatctc acttgtttaa 420
tcacacgtta attaccact attgttgaat atatatatat atatatatat atatatattt 480
atatatatat atatatattt atatatgtat atatatatta tatatatata tatatattta 540
tatatatat                                     549

```

<210> 1787

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1787

```

ttccaaaata gnganancag ttaatttttag acaaatataa aataataaat aaatcgaaat 60
aaagtttgat gaacaatatt tattattaaa ttgcgattgc acaatttaag cagtataacg 120
aaatggcggtt acggattttg aagcctttta gaaactctct tggaatttgt caagatatca 180
aaaaggcttc gacgctatct gcatttgata ttcaacataa aaccctctt attaagcaat 240
cagatgaaat tccaaaagca caatatgggg gtcgtcacgc agtcacaatg ctgcctgggtg 300
gcggtatttg tccggaactt atgggatatg taaaagaagt tttcagatat gctgggtgtgc 360
cagtagattt tgaagaaatt acaatagatc cttctgtaca ttcagatgct gatttagaat 420
atgccatcac ttcaattaaa agaaatggag ttgctattaa aggtaatatt gaaacaaaaa 480
gtgaatctgc acangtatta tctcgtaatg taccctgaga aacgaataga ttatttgnaa 540
tgtttaaac                                     549

```

<210> 1788

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1788

```

gtnagccacc attacatccg gtgagcagtc aggtgcggtg atacgtgggtg tttttgatga 60
ccctgaaaat atcagctatg ccggacaggg cgtgcgcggt gaaggctcca gcccgccct 120
gtttgtccgg actgatgagg tgcggcagct gcggcggtga gacacgctga ccacggtga 180

```

```

ggaaaatttc tgggtagatc gggtttcgcc ggatgatggc ggaagttgtc atctccgcct 240
ctttcactca ttaagactgt aaataaacca cctgggtctg cagatattca tgcaagccat 300
gtttaccatc tgcgccgcca ataccggatt tacgccatcc ggcgtggaag ccttgcatag 360
cttcgaagtt ttcacggttg atgtaagttt caccaaactt caccctttaa tggctttcat 420
cgcgacgttc agattttggg tatagattga tgaggtcagg ccgtaatcac tgcattagcc 480
attgagatag catcttccag cgtgtaaatg cgcaactggc agcaccggcc aaagtttcta 540
tgctatcga 549

```

<210> 1789

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1789

```

aatgcccata cctaccnttc cgcgctgccc cgtcgcctgc tccgccatat caaccaacgt 60
ggcgatcggt tcaatagtct gccggtaatc atcacgcggc gtgggcagac gatggcggtg 120
caactgctcc cctgcatcgc ccagtgaat cacttcagtt ttggtgccgc ctaaactgat 180
acctatacgc acggtactct cttatTTTT ttcaatatca atagcgtaga gacggacaac 240
cggattggca atgcaaggcc gccgacaatt cgttatcatg cccgctaaat ttaacgacaa 300
ggcgtggaa attatcatgc tgtggttcaa aaatttaatg gtttaccgtc ttagccgcga 360
gatttcgctg cgtgcagaag agatggaaaa acagctagcc tcgatggcat ttaccccatg 420
cggcagccag gacatggcga agatgggctg ggttcctcga tgggatcgca cagcgatgcg 480
ttaacgcacg ttncaatggc aaattgtatc tggcgccaaa gaagaaaaat ctccgtttcg 540
gtgataaac 549

```

<210> 1790

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1790

```

gcgagaccaa tgtcaccggc ttaacaatct atcaaatttg ccgggccgtc gactggacaa 60
ttgtttcaca aatgatgtta tttgtccaa caataataa tagtcccagt gttttaaaac 120
gtcagcgata cgctgcaaag tgtacaagtg tcatatatgt tctgtagtcg tgtctgcata 180
tcgatccgtt ttgccattgc cttgaaaacg ccatattgta tgtactttac gtagttatat 240
ccaacttttg aattaaatgt gttttaagtg tttaatgtta ttttcctaaa tcttgatttt 300
gattagtaac ccttaatcat ggatagaagg aagctttcca cttctggtga tactttatac 360
caaataattag ccattccaaa aactgccact caagatgaag ttaagaaaag ttataggaaa 420
ttggcggtga agtaccatcc tgataagacc caaataatcc agaggcgtct gaaaaattaa 480
agaagtaacc gacctatg atactagcga tgcagcaaaa gaacatatat gacaattatg 540
gtcttagga 549

```

<210> 1791

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1791

```
aatcggcgggt gcgcencaac gtattacctg ggaagggtcg cagaaccagg atgcgggatgt 60
cagcagcgac ggtaaattta tggtaatggt cagctccaat ggtgggcagc agcacattgc 120
caacaagat ctggcaacgg gaggcgtaca agttctgtcg tccacgttcc tggatgaaac 180
gccaagtctg gcacctaacg gcactatggt aatctacagc tcttctcagg ggatgggac 240
cgtgctgaat ttggtttcta cagatgggcg tttcaaagcg cgtcttccgg caactgatgg 300
acaggtcaaa ttccctgcct ggtcgccgta tctgtgataa taattaattg aatagtaaag 360
gaatcattga aatgcaactg aacaaagtgc tgaaagggct gatgattgct ctgctgttat 420
ggcaattgcg gcatgttctt caacaagaac gccagcaatg acggcagctg ctggaaaaag 480
tcgagctgcg gaggataacc cagcagactg gaggagtctt gaaagatgga aggatccagt 540
cccaattcc 549
```

<210> 1792

<211> 248

<212> DNA

<213> Ctenocephalides felis

<400> 1792

```
cagagacttc atatgctttg atggtaataa cttctgagt cctgatgcat ttgataacga 60
aaaaattaaa gaacgaaaat taacttaca ggcaaggaaa aacgatagag aaactatgtg 120
tcccaaaata taggaaaaac aagaattatc aaaataatct aaatatattt acaatgtaat 180
aaaatattat atataaaaat aaaaaaacgt catnnttcaa aaaaaaaaaa aaaaaaaaaa 240
aaaaaac 248
```

<210> 1793

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1793

```
aatccacaat tgttacncgt aacaaatcga atcattgaac gttcgcgcga gactcgctct 60
gcttatctcg cccgtagaga acaagcgaaa acttcgaccg ttcacgttc gcagttggca 120
tgcggttaacc tggcacacgg ttctgctgcc tgccagccag aagacaaagc ctctttgaaa 180
agcatgttgc gtaacaatat cgccatcatc acctectata acgacatgct ctccgcgcac 240
cagccttatg aacactatcc agaaatcatt cgtaaagccc tgcataaagc gaatgcgggt 300
ggtcagggtg cgggcgggtg tccggcgatg tgtgatggtg tcaccaggg gcaggatgga 360
atggaattgt cgctgctaag ccgcgaagtg atagcgatgt ctgcggcggt ggggctgtcc 420
cataacatgt ttgatggtgc tctgttcctc ggtgtgtgcg acaagattgt ccggtctgac 480
gatggcagcc tgctgttggt catttntcgc ggtgtgtgcc gctggacgat ggcagcggtt 540
gcaataaa 549
```

<210> 1794

<211> 446

<212> DNA

<213> Ctenocephalides felis

<400> 1794

```

aatggctcca gcgcttcgaa aagtttatga tcaaatgcct gaaccacggt gggtaatctc 60
tatgggtagt tgtgctaata gaggagggtta ttaccattat tcatattctg tagtgagggg 120
ttgtgataga atagtaccag ttgacatata tgtaccagga tgcctccaa ctgcagaagc 180
tttgttatat ggttgtttac agcttcaaaa gaaagttaaa cgaatgaaaa cctgcaaat 240
gtgggtataga aaataaatta ttgaaaagga gaatattaat tataaaaaat atgctatatc 300
aaaagtgtag aattatgttt acagtaatgt aaacaaattt tattttttct tcactaatta 360
ttgaaaataa tatgttcata atcctatagc agaatttaat aaataaaaaac acatttttaa 420
aatgaaaaaa aaaaaaaaaa aaaaan 446

```

<210> 1795

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1795

```

attcatttca atattgggtg aaatcagtat gaattcatta ttaagttcaa tcattattgt 60
ggtatttttc gtatgggtta gtgtaatttt tgcagttaac gtaaagccca aaccaaata 120
agatgattac tgtaatctaa attgtacaaa tggaccaaata gtaggatgca caaaaccgga 180
tgtacctaga gactgccaaa actttaaact tgtgaatata acagaacgta tgaaaaaggc 240
atttttaaat gcacacaata gaaagagaag acttgttgca gccggaaaag gtcttctgaa 300
agatgggtga cacactccaa ttgctgcaaa gatgcccaac ttaacgtgga atatagcgct 360
cgccaagtta gcagaatata acgtgaagca atgcgaaatg aagcacgatt gtgctaaaac 420
tagacatggc cacactggtc aaaacctatt ttttatggca ctactctcag cccataaaaa 480
actcaactat agcaaaatgg cagttgatgg ttggatgtga agcaaagata cangattgga 540
gatataaga 549

```

<210> 1796

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1796

```

aaatgtcatt gcgttncat ttttgattat ttcacagta tttcaataaa tccaacatat 60
gtctcggcac acatcattat aattaaatta ttagtatcat ttccattaat ttattttact 120
ggcgtcaata tgacgggtatc aaacgacgaa ttagttgaat cttttaaagc tttaggttta 180
agtgaacaaa aggcgaaaga aacgttaaaa aatacagttg ttacgaaaaa tttaacatta 240
gcattacatg aggtgagggg cattattttg cccaaggag ctggttcttt aatctattat 300
gtggcaacaa aaatcaaacc acagattata gatcaattgc ctgtacttgt aaaatatata 360
tcaacatcaa aattagacac aacagttaga gttgatgcgg ccttgcaatt tatgttgtct 420
catttaaatg gatatacaat cgatgaattt gagaaggctt gtggaattgg gttgtgtaca 480
cctgaacaaa ttgaaaaagc agaaatgagg cttgtggaac ataaagaggc aattttgaga 540
acgatacag 549

```

<210> 1797

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1797

```

antccatata atcgggttcgc gaactgggtc gaacacatat ctgtgtacac gtgttagtat 60
caaatattatt attaaaagat ataacgatcg aatcatataa gatattttgt gattatccgc 120
gagagaaaga ataaccgctt cgctgacgta gttttgggta tcagttcatt tgattcggac 180
gttccggcaa cttgttagta aacatgagtt tctgtgagaa caataactac acggtggatg 240
aatgttccta tgaaggatt aaagagacga cagaatttct aattcagaaa accaaatattc 300
gacaaaaaat tggattattc tgtggatccg gaataggacc cctggctgac aatttataaaa 360
atgcagattc cttcgattac agtcaaattc ccaactttcc cgtaagcaca gttccgggtc 420
ataaagggtcg acttgatttt ggcaccttgg gtggaatcga ggtcctttgc atgcaaggac 480
gttttcatta ttatgaaggc tattcgtgaa tagtgtgttt cggtngagta tgaataactg 540
gcataccat                                     549

```

<210> 1798

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1798

```

aattttattt tgcattacta ccttatataa cgaaaacaca aatgtaaaac tcatcccaca 60
gatgaattac ctgatggttg ttgtggcttt gtttttctt aacgccgtca tttttctttt 120
catgttaatg aaatatttca ctaacaaaca aattttacca acactcattt taagccttgc 180
atttttaagt ggccttatct atttagttga aaccattgta attatccata aaccaattaa 240
cggcagtaca ctgatccaga caaagtcgaa tgatgtttct attttctata ttttccgccca 300
actcagtttt atttgtttaa cctcgctggc gctcttttgt tatggaaaag acaacatcct 360
tgacaacaat aagaaaaaaa cgggaatcct gttgctggcg ctgatccctt ttttagtttt 420
tccccttctg gcacacaatc tgagcagtta taacgctgac tattctttgt atgtcgcgat 480
actgtcggac aaccatactg cgacctgggg aataacttca aaatattggt ttgctgnggc 540
ttttactgt                                     549

```

<210> 1799

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1799

```

gtaacaaaca tgacgaaaaa ggtgtcacca atttgagcat agcagcacca cctcaaccat 60
tttctgcatc tcaaccttca ccatcgggtc tcacacgtat gctgcataat ccagggtggaa 120
atcctccagt gtctattaat ccaactgtc cagtcacttg tgattccaat atgcctactg 180
gatctgtggg attgaccacc tccccttcca gctttcaagg aaaatattac ccgcattctg 240

```

```

aaaattatattt acaaaggcct aggggaccaa tgggagcagc tatgggaatt tatagacctg 300
caggccctat gggtaattat ccaccacgtg gtatgtatca ttctcctcat catccattag 360
acccttcacc ttctgggtgga ggacctatca atgtgcagca aatattctcc cgacgtcagc 420
gcctggacaa attggagctc accacctttg agactgtact ccccaaagc gcgtatgccc 480
tatgaatcat gcatccagca tanggccag cattctaatt ttnaaatcac ttatggctat 540
nanggcacc 549

```

<210> 1800

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1800

```

aatnaatgga ctgcgttatg aaaggactca ataaaatcac ctgctgcttg ctggcagcac 60
tactcatgcc ttgtgcagga cagctgaga acgaacaata cggcgcgaaac ttcaataacg 120
ccgatatccg ccagttcgtg gaaatagtgg gtcagcatct tggcaaaacg atcctgatcg 180
acccttcggt ncagggaacc atttccgtac gcagtaatga tacgttttagc caacaggagt 240
actaccagtt ctttttaagt attcttgatc ttacaggtta ttccgtgatc acgctggaca 300
atggttttct gaaagtgggt cgctcagcta atgtaaaaac atcgccaggg atgattgctg 360
acagttctcg tccaggcgta ggtgatgagt tggtcacccg aattgtaccg cttgagaacg 420
ttcctgctcg tgacctgccc ccctgctccg cagatgatgg atcggggtag cgctgtaatg 480
ttgtgcatta tgaacctcc acgtcttatt ctgccggcgt gcctcaccat taataaactg 540
nttgagcat 549

```

<210> 1801

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1801

```

gctnagcttt tcaatatact ttaagctaaa acagacgttg taatgaatgg agaaatgtga 60
aggatgaatt acattctaata aaaaatgatt ttaaaatata atgctacgca tatcatctat 120
tatatgtatg tgattaatgc cgaaatctgc acagcaaaac aaanaccaa acatttatgt 180
aaactagaat caatatttgc ttgtgtaatt gcatatttat tttgatagcc caatatagag 240
tagatcgact tcgaaattac gaattacata cacacatgta tatatatata tatatatata 300
tatatatata tatataatat gcataaatat acataaatat atgcntgtat atacacatgt 360
ataaatatag aattttacat atgtgtatat gagcatatat atatatatat attcttattt 420
aacctcatat ttataattaa ttatatggta atcgcnaaaa aaaatgataa cacaatgttt 480
tgtaaatcat aaatcacata cgtactaaat atttagtatac tggttttcat acanccctag 540
ncgtattat 549

```

<210> 1802

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1802

```

gctaacagtt acaattaatt ttaagtatt gggcgtttta ttattgtatt ttaatatata 60
attctatatt taaatcaatt atgagtttgc ctttagaaat tagaagactt gacgaagcag 120
taattaacag aattgctgca ggagaaatca tccaaaggcc tgcaaagcc ttaaaagaat 180
tacttgaaaa cagtctcgat gcaaaatcca gtagtattca aatttcagtt aaatccggag 240
gcttaaagta cttacaaatc caagacaatg ggacaggaat tcgcaaagaa gatttggcca 300
tcgtttgtga gcgatttact acgtctaagc tccaaaaatt tgaagattta caaagtatag 360
ccacctatgg attcagaggt gaggccttag ctagtataag ccatatagca agactttcca 420
tacaacaaaa aacagcagac tccgttgtgc tttcaaagca tcttacgaag atggaaattg 480
aaatttcccc aaccatgtgc tggaaataag gaccaatac agtagaagac ttttctatat 540
actacagnt 549

```

<210> 1803

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1803

```

gatctaaatc ccagcttaat accggcatcc acgcatagat gtttacacct gagcgggtac 60
gtaattgccg ggcaaccgga ctaaaaatat ctgctttcat tggtagcaaa cgatttggaa 120
accagacctc ttgaccagc ccatcaccat cgggatcagc aaatgcctgc aaatacacgg 180
ttgatatttg catatctttc acccgctgaa ttagcacatc aatattgcca tccatttgct 240
ggagggtttc gtcataaacg taatcaagat cgatatgcat tatccgttgt ggtgattttt 300
cctgtacggt aataatttgc tgggcaaact cttttaatga gggattattg gcgattaata 360
cccgcggaat ggaatccaat tgcgacgcat ttgccaaacc tgattcaagg gtgagcccg 420
taccgaattc gcctatagtg agtcgtatta caattcactg gcgtcgttta caacgtcgtg 480
actgggaaaa ccctgcgtac ccaacttaat cgcttgagca catccccttt cgcagctggc 540
gtatacgaa 549

```

<210> 1804

<211> 280

<212> DNA

<213> *Ctenocephalides felis*

<400> 1804

```

aattctgcga tctgnnaggt gtgcgtaatt gtcgcgatct gactgatttt ggcagagaaa 60
ttcgcgcaac ggtgctacaa cgtacccatc ttactgttgg tgtggggatc gccagacca 120
aaacgctggc taagcttgcc aatcatgcgg caaaaaaatg gcagcggcag acgggtgggg 180
tggtggattt atcaaactctg gaacgccagc gtaaatattt gtctgctctc cccgtggatg 240
acgtctgggg gattggacgg cggatcagca aaaaactgga 280

```

<210> 1805

<211> 528

<212> DNA

<213> Ctenocephalides felis

<400> 1805

```
gcgcccctat gagtgcagta tatgcaagaa gacattcaca .caatcgcggg ctctgaaatc 60
tcacatgctc attcacaatg gtgagcgccc ccttgagtgc aatgtatgca agaagacatt 120
cacacatttt gttgttctga aaagacacat gctcggttcac agtgattagc gtcccatga 180
atgcagtata tgcaataaga cattcaaagg attaagttct ctgaaagaac acttgcggtat 240
tcatacagga gagcgctcct ataaatgtga aatatgcaat aaggaattta ctctattaag 300
agttttgaag aaacacatgg ccattcatag taggaagcgt gatgaaaatc agtgaaatat 360
ctgttaaatt gtatttaaatt atttggaac atgttataaa atattcttac atataataga 420
atgtataatt agataaaata tattttataa atatgtaata ataaacatta aacatgcatt 480
attgtaaata aaggcaattg ttcataataa aaaaaaaaaa aaaaaaaaaa 528
```

<210> 1806

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1806

```
aataacctta ttgctctact aaaaatatat ataataatct ctgattttgg gacagaaata 60
atttaaatat ttagatagc tttcaataaa gaataactaa tatagtatcc aattaattag 120
tctcctgtca gcatgtctac acgatggtac cctctttatc aaagaggcaa tccacagctg 180
agagtattct taccaaattt ctggttgaaa ttaataaggc ctgttcatga acaaccacca 240
aatgttgtgc aattcgctg ttccatgcaa atgacaaaat acgatataaa aaactattta 300
gaaaaaatat acaatgttcc aatcatagat gtgagaacaa gaattcaatt aggtaaaact 360
aaacgagatt tgaaaggata tattgtaaaa gaagaagata ctaaattagc ttatgttaca 420
ttgctaaaga agaagtattg aatttctaatt atttcaaaaa agatgaagag agcagttcaa 480
gaagattgaa aagntgaatg aatcaaagaa cttataaaat acctggaaga ataaaatcac 540
cgncaccan 549
```

<210> 1807

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1807

```
aattatgatg ttgattncca tgaagatgct gataaagcca atcaggcact gaaagatgcg 60
gtagcggaat taatgaaaa cgaagaaatt cgcgggctga ttattggtga accgaatttt 120
gccgggattg tcgnttaag caataccgng tttacactgc gtgtttcgtt caccacgctg 180
ccactcaaac agtggacggt acgctttgcc ctgcagacc aggtgaaaaa acatttcgac 240
ctggcgggcg ttcgcgcgcc agtgcagact tatcaggtgc tgtctgctcc gggcgcgacc 300
ccgntgaac cgttaccgcc gggggaacca acgctttaac gctggcgatt gacaaaaacg 360
ggcggcgctg tcgngttca taaaggtaa ggcaataaag cactttgctt tgccctgggc 420
ctctcttttt acaccttcac cgccancgt ccgtaaggca cgnnaccgg ggntagtttn 480
acaacgagat ccagnatgta aaccctaacc tgcttcgnga nncttggtt ctcatatttt 540
ttgnaaaag 549
```


<210> 1808

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1808

```

aatcaattaa atcacttaaa cctgcgagtc atttcgtaat tacattaatt aaaaaactta 60
aaatcattaa ataaataaaa aaccactaac tctatgtgaa ataaatcaaa atttcacgcc 120
gaaatactcc ttaggatgta tagcgaaagg agaaaaagat atacctgat cacccccttt 180
ctcccaagtg aaaataaaaag gttatcagtt tgcaacattg aacaacattc gttgcaaate 240
gataacaaca tgcaccttca ggatactatt tattatgttc ggcaatgata ttttcacccg 300
cgtaaaacgt tcagaaaata aaaaaatggc ggaaatcgcc caattcctgc atgaaaatga 360
tttgagcggt gacaccacag tcgaagtatt tattaccgta acccgcgatg aaaagcttat 420
cgcgtgcggt ggaattgcgg aaatattatt aaatgcgttg ctatcagtga atccgcgcgcg 480
gtgaaggact ggcgctgcat tagccactga attgataaac ctgcgtatga cggcacagca 540
cgcttggtta

```

<210> 1809

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1809

```

ttgaaagcaa aatattatth ttggactgac taaccctgac ttttgctatg tcaattacct 60
cagcagataa aaataattca taggaaagtg taatttataa caaacgtcgc aatatatatt 120
tcacattttc aagatggaac aaaataattc agttgactgg caaatatcaa gaaaagaagt 180
aagacagagg gctcaatate ttttagaaac agggcaatgg tcagattgca aatttttagt 240
tggttcagaa tctaataaac aagttgtgga ggctcataaa ttatttttggt ctattgcctc 300
tccagtattc gaagctatgt tttttggaaa tatggctgag aaaaatgata caattccaat 360
attggatgta cagccagatg ctttcaaggc attgttagaa tatatctaca cagacaacat 420
taatataaac tcttttgcaa agcttgtgaa ctgtgttatt gtgcaaaaaa gttatgttac 480
ccatttggtg gagaaatgac aaaattttat ggctgactca tgctcgaaat gtgtaagcat 540
atgaatttg

```

<210> 1810

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1810

```

gtttgaagaa aaaggaaata ttgccngcgc agcagggcag gaagatcgag gcaaagggtca 60
cggacgagct gataaggagg cttataaacg cggataaaat taaggaggcg aatgcggnc 120
gacccaaggc agaaagggcc aagaaggaag cggctgcagc gaaggaaggg gatgaatttg 180
atcaaattgt tgacggttcc aagaagccac tgaagcaacg aatcaaaaag gaagataaag 240

```

```

ataaagacaa ggataaaatg aaacagacta aattagattt tagtaaaaag ggaaagaaga 300
acaaaaagaa aggcgccaga aaggattctt ttggcagcga atcatcggat gaagatgate 360
cggattcaga ttttgaagct catgcatctt cagaatctcc taaaagacaa ttagcaagtc 420
ggggaactaa aaanccggtg aaatacagtc tgcggagttc agatgaagaa gaagagctgt 480
ttgacaataa acaaatggac agtgagccgt gtgtgtaccg tcttcagatc tgattccgtg 540
tgaacctct

```

<210> 1811

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1811

```

aatgaaatca gtctttatgc cggttatcag gcaggaatat ggtcaacatc cccaatagtg 60
gcaggaaagc acagatttta tagactaact cgatgctggt gtgatcggcg ataagcccca 120
gaactgccgc tcccagacct cccatgccaa aagcaaaacc gaaaaagagt ccagaaacca 180
taccgatacg tcttgaagc agctcctgag cgtagaccag aatggcagag aatgccgaag 240
cgaggataaa tccaataatc accgttaaaa ccccgtcca gtgcaggctg gcgtagggtg 300
aaatcagcgt aaacggcgca acgccgagga tagagcccca aatcacatat ttccgcccaa 360
ttttatcccc tacaggcccg ccgatcaccg tacctgccgc acggcaaaac ggaaggcaaa 420
cagatgaagc tgagcattct ggatagataa tccgaatttt tgcacagat aaaagggtgta 480
atagctgtgt gtcgcatat agaaatattt cgagaaaatg aggattaaca gatgctgccg 540
cagtacaac

```

<210> 1812

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1812

```

atggctctcg cctctntatg ccgacaagct cgctctcttt ctgtctatca gaacaaattc 60
gctactcgta cgacgcgtca gtcttcgatt gttcttgatt cagttcgcga attttcaaag 120
aaaatgggtc tgccacgagt tttcttcgac atgaccgccg acggcgagcc ggttggaaga 180
atcgttatgg agcttcgtaa cgatgtgacc cccaagacct gtgagaactt ccgcgccctc 240
tgcaccggcg aaaagggcct cggtacaaa ggctcctcat tccaccgagt catccccaac 300
ttcatgtgcc aagggggcga cttcaciaaac cacaacggca ccggcggaag gtccatctac 360
ggaaacaaat tccccgatga gaacttcacc ttgaaacaca ccggcccagg catcatgtcc 420
atggcaacgc agggcccaac accaacggat ccagttctt catacgactg tcaagacacc 480
tggtggacaa ccgcacgttg tctttggatc ggttgagaag gatggatgtc gtgaagaagt 540
ggagagtat

```

<210> 1813

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1813

aatacgcgtt ccacgggtng caaccattta aatcggtaag taaaacatca acatattgcg 60
tattcgggta gcgctccagg tagcgtttca ctctctgct aaaggcgcta cccgcctct 120
cttctgactg ctgaacaaag ttctctactt caacgatatt ggtttccatg attcttcgcc 180
tttggtttgt ttttccgctc gttatcaaag cgtaaaatat aatgaccacc attcgaatct 240
gtatgcaaac taaatgtttg tcaaatgtta aattgagttt gcaaaaatga aaaccactg 300
ctagattgaa aaaatattga acataaaggt catttaaagc gcngtaatgg cgatnattta 360
gtccactttg tgagattgag catggaaaat ataatgaaca atncggttat cgggtcgtaa 420
tgtgcangaa caggcttaag ggtcatgcca cccagactct gaagaaangt acctgatgcn 480
tctccatgca ggcggttgct attngctnca catgcgctng cggaccgtna tacttgacaa 540
ctttgccga 549

<210> 1814

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1814

ggcgcgagtg gacactgcgc tggatcgct gatgcagggg gcaccggcac cgctggctgc 60
aggtaacacg gactggctcg gcgtgcaggt ggactcggag cagttcggca gccagcaggt 120
gagccgtaat tatcatctgc gcgggcgtat tctgcaggtg ccgtcgaact ataaccgca 180
gacgcggcaa tacagcggta tctgggtaga tcgggtttcg ccgatgatg gcggaagttg 240
tcatctctgg cttggacggg gcgtaccgcc tgccgttaac cgtcgccgct gaaaggggga 300
tgtatggcca taaaaggctc tgagcaggcc gttgaaaacc tcagccgtat cagcaaacg 360
gcgggtgctg gtgccgccgc aatggccatt aaccgcgttg cttcatccgc gatatcgag 420
tcggcgctac aggttgccgt gagacaaagg taccggaaa ctgtaaagga aaggccaggc 480
tgaaaaggcc acgggtcaaaa atcgnaggcc agaataaagt taaccggggg gatttgccna 540
taactggta 549

<210> 1815

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1815

aattctgcgc ggctttgatt ttgacggcca ggaggcgctg aaagattctc gcgtgctgat 60
agtgggctcg ggcgccctcg gctgtgcagc ctgcagtat ctggcaagcg ccggtgtcgg 120
taacctgacg ctgctcgact tcgacacggg ttcgctctcg aatctgcaac gccagacact 180
gcacagtgat gccacggctg ggcaaccgaa ggtggaatcc gcccgtagc ccctgacgcg 240
gatcaaccca catatcgga ttacgccagt caatgcaact ctggatgacg cagaacttgc 300
agcattgatt gctgaacacg atctggtgct cgactgtacg gataacgttg cggtagctaa 360
tcaactgaac gcaggctgtt ttgcccgaa ggtaccgctg gtttccggcg cggcaattcg 420
tatggaaggt caaatcaccg tctttactta tcaggacggg gaaccgtgct atcgtgctta 480
ccgttggttg tgaaaatgat taacctgcgt ggaagcagcg taatgcaccg tgatcgggta 540
ttggctcgtg 549

<210> 1816

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1816

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atcaattcgt attagacttt ttgataaaaa atgctgtcta aagcttcgct tttggccaag 60
gtatcccggc cactgactgt ggcagtgcga acaacatccc aggctgcaac atgccctgct 120
cctacaaagg tagaagaagc cgatagtgtt gaaagagatt tggcgaactt cccaaggcca 180
acacgttttg aacattcacc taaagttcgc tttggattca ttccagactc atggtttgaa 240
tttttctatg agaagaccgg tgttactgga ccttacatgt ttggaactgg ttttaattact 300
tacttatgtt caaaggaaat ttacgttatg gagcatgaat tctatactgg tatttcattg 360
ggtattatct gtctctatgc cactaaaaag ttgggtccac atattgcaaa atacttggaac 420
aaagaagttg atgcctatgc cgatgaatgg aattcagggtc gtgtagaaga agttaaaagt 480
tccaagatgc cattgaagga gaaaagttgg acaatggaga gctgaagtac ttatgttgat 540
ggatgcaaa 549

```

<210> 1817

<211> 87

<212> DNA

<213> Ctenocephalides felis

<400> 1817

```

aatttccagc gcgctcagta ccaccacgtc gagacgatca accgatgcgc ctttcgaacc 60
ccagtttagcg tactggttgg cgctgat 87

```

<210> 1818

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1818

```

aaaaaacaac cgcagtttgc taccatttgc ggtaaaaagt taattacaaa cactacaaaa 60
atgaaagcgt tcatcgtagc agctttactg atcgccatgg tggcagctcg tccccagaaa 120
gaagtggaga tcttgcgtta cgacagcgat aacattggcg tcgacgggta caaattcgcc 180
tacgagctga gcgacggaac caaccgcca gaagaagctc aattgcagaa cgccggaacc 240
gaaaacgagg caatctccgt ccgcggctct tacacctggg tggcacctga tggacagcaa 300
tacaccgtca actttgtcgc cgacgaaaac ggttttcgac cagaaggagc acacattccg 360
aaataaaacc accaaattaa attagactac tatgtatgat actcaaata tacctgcatt 420
gaatatgtca tgtatgcca tatattaact gaattgataa cttaatagat caaaagcaat 480
atatatatat atatatatat atatcgcnca atgtntgtat cattataana 540
nttttatca 549

```

<210> 1819

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1819

```

aataccattt tcaaaatcac catattgctt caaaaaatcg ggatgtgttt ccccaaatc 60
ctctatatct tcccagcctt ctgcaccaga aataacggca caaatagtca acagtagaat 120
atccgataat ttatgttcca ctttccaggc ttgtctgtaa tcggggataa tagaaatatg 180
ttccatcaat tttttaagtt ccattttgtt ctccttaatt atgtaagaag tatttgatca 240
tgtataagca ataaaaaaca gtttcaggta ataaggaata tctcaatttt taaacataaa 300
atgcgaatta tttagtacaa aaagcaggga aagattacga aagcccgtc cccgcaagga 360
ctgacgcgag ggggggcccg gtcccaattc gcctatagt agtcgtatta caattcactg 420
gcgtcgttta caacgtcgtg actgggaaaa ccctgcgtta cccaacttaa tcgcttnagc 480
acatccccct tcgcagctgg cgtaatagcg aagaggccga ccgtcgctt ccacagttgc 540
cagctgatg

```

<210> 1820

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1820

```

agtnnatcta taaagtgaca tatcaataaa tatttattta gactaagtg tttttgttta 60
taaaatctta aaaacaacaa ccatggctcg ttttatgatt gctttatccc tggcggtttt 120
aatcgtcgcc gtaaccgcca ctccctacgg tgccggagga cacggaagca gtggcggcgg 180
acacggctcc gggcttgact ccggttttgg ggggcacgga agccgcgcca gtggacttgg 240
aggcagtagt ttttccagt gtagccacgg tggcggaact ggaggtggaa gcagaggcca 300
tgagggccta ggcggatctg gaggttttgg aggccaaagga ggccttgggt gtggacacgg 360
aggcgttggg ggcggacatg gaggtcacag tggcggaagga cgtggaggac atggcggcag 420
tcattctaga tgaaatataa aagagaactc tctgaaaatt tggttgaatc tgtgattccg 480
tctttatcca ccagaaatta attaaaaatt tgaattaaca atgaataata tgtatttttg 540
ataatttga

```

<210> 1821

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1821

```

cccatggtat ggagggantg ggacctgaac attcttctgg acgtttggaa agatttcttc 60
agctctcttc agatgatccc gattatttcc ctccagaatg cgaagaattt gctgttcgac 120
aattgcatga tatcaactgg attgtagcca actgcacaac acctgctaatt tattttcata 180
ttttacgtag acaaattgct ttacctttcc gtaagccatt gatcattatg actccaaaat 240
cggtgttgag acatccagaa gctaagagtt cttttgatca aatgacagag aacactgaat 300
ttatcagaat gattccagaa gaaggaccag cagcatcaga tcccagctct gtcaagaagt 360

```

taattttctg ctctggtaaa atctactacg acttgacca tgcgcgccgt gaaaagaaat 420
tggataattc tattgcaatt gctagagtag agcaaatttc tcctttccca tatgatttga 480
taaagaaaga atgtgcgaaa tatctaagtc aaatcttgat ggctcaagaa gagcaaaaga 540
catgggtgc 549

<210> 1822

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1822

gctatcttgc ggacaacacc gttgcgagag caactgtcac aaggacggt gtgacccatg 60
ctggcggtca agttttgatg agctgacatg tgaatgtggc tacagcataa ggtatccacc 120
cattccatgt ggcgcccgca aaccaacttg tgatcaagtt tgctcaagac aacactcatg 180
tagtcatccc gttcttcata catgtcatag tgaagccgaa tgtccaccat gtaccgttct 240
atgttccaag tgggtgtttg gtaaacatga gatgcgcaaa actatcccct gccaccaaaa 300
ggatttttca tgcggccgtc catgcggaaa agaattacca tgggtaagc attcatgtct 360
attgccctgt cacaaggtg catgtctaca agacgggaag acctgtagtc aaccatgtgc 420
tacgcctcgt tcttcttgca atcatccttg tcgtaccctt gcatgaaggt atttgccaga 480
cacaccttga aagaaaagga ttggtcatgt aatgtaaaact cgtcccacca gacatgtcag 540
aaacgtcgc 549

<210> 1823

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1823

aaaacccgac gaactgnaaa aaccgccgcg ccagatatcc tcttcgcgta ccacttgttt 60
cagtcggcca tattccgcaa aggcgacctc acgaatatcc gccttgccag gctcatcttc 120
accgccaata aaaccaatac gattaacgcc ctggttgata tagaagtcga tgatttcttt 180
actgatgcgt gccagatcga tatccaccgc atcgtaaccg ctgccgggtt cgtgaaagtc 240
gataaaacag atattgtcgg tcaacgcgct ggcagcgcg cgcagggcg gcgtgggttt 300
gccgacaatt aaaataccgg tgacgttttt aatgtctggt aagccgctgt gttcataaca 360
gttggtagc tcgatgccc gcttttcgca ctgggtttca atgccgtggc ggatcgcaga 420
tagtaaggat cgtgatctcc agctcctgtg gagctgtaga tagccagaat atgggttggt 480
gactgacctg ttggagttac ggcactactg gcttgactca nttttcggga tctcgnaatg 540
cgatgttcn 549

<210> 1824

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1824

```

gtcgaaactac acgttttggc gacagatttt tcgtacattg tcaataatta atattttaac 60
aaaagcgaat acagtgaacg gtcagtgatt tttatgttat ccgttaacgt aattcacttg 120
tgatacaaaag caataggccg tcaaaacaac cgtgcgggta taatggcagc actccctcgg 180
cgtataataa aagaaacact tcgactaatt caggagccag tgccgggaat cagtgcattt 240
ccggatgaca gtaatgcacg ctattttcat gtcgtcgtag ccgggcccga ggactctcca 300
ttcgaggggg gctcatttaa actagaatta tttttaccg aagactacc catgtctgcg 360
cccaaggcca gatttatcac gaaaatatat catccaaata ttgacagact aggtcgtatc 420
tgtttgaca tactgaaaga taaatggagc cccgtctta aatcagaacg gtactcttat 480
caatacaagc cttactgagc gccctaattc agatgaccc ttggcaatga tgtggtgatg 540
tggaagtaa 549

```

<210> 1825

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1825

```

aattcggtaa ttaattctta acatgctttt actaataatc tcaattgctg gccctataat 60
attgcgctag cattgctttc tggtgtatc agcgatactc aaaaattctt aatacaatac 120
tcattcgact ggtacttatt tgtaactcag ttatattttt tcgcccgtg attcagaaga 180
atgcaaaaaa cggctaccac tccatcaaaa atacttgatc tctctgccc ggcatTTTTa 240
cttgctgcct ttctgacggg tattgcgggc gctcttcaga ctctaccct aagtatatc 300
ctcgcatg aactgaaagc ccgtctata atggtaggtt tttcttcac cggtagcgct 360
attatgggaa ttctggtcag tcaatttctg gcaaggcact ccgataaaca aggcgaccgt 420
aaattactga ttctgctatg ttgcttattt ggagtgtggt ctgccgctt ttgctggaa 480
tcgcaactac ttcatctcc tctcaacggg cgtcttctga gtagtttgtt caccgaaacc 540
cgaaatgtc 549

```

<210> 1826

<211> 541

<212> DNA

<213> Ctenocephalides felis

<400> 1826

```

aaggnggttt agtaatatta gccaatatgg caaagtattt agggctagat aaagtcgctc 60
gcttatttag gattgtgtct gctaattggc gaattagagg aagtcttgca aaactggcaa 120
gaacagatga tttaaaactg ggcactctag taggagaaga caaatcgggt aataaatatt 180
atgaaaataa tgaatacttc tacggacgta atagatgggt cgattatgct ccacatgttg 240
gattaaatta tgatgcctcc caagtgtgtc ctgagtgggt tggttggtc cattacaaaa 300
cggatcttcc tccaacaaaa gatccagcca gagcgcatca taaatggatg tcgaatcata 360
gtgaaaactt atctggaaca gatcgtaaat atgttccata ttccactact gtcccaaaaa 420
tcaggcatgg aatcccaatg caaaataagt catgaaaatt ttggatttac ttagtctaatt 480
tgtaataatg taattctatt taaaattatg gacaagatca agttaaaaaa aaaaaaaaaa 540
a 541

```

<210> 1827

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1827

```

ggaagtcgga ctcggcaciaa agaccgactt ttgccgaagc ccggcacgat ctgaccgccc 60
tgcaccgtgc agagtctgcc gccctggacg ccatggacga tgcctcaacg acggactgtt 120
ttgatgtcag tggattcagc gaggactacg aaaatggagt tgtgtatatt gataggcgga 180
tttcggaatt tgaatgtgat atttgattta ggctcaaatt gcacatcggg aaaatcaaatt 240
tattatctag ctttgtgcaa ttgggaggga acatcgattt gcagatactt tcttgagcaa 300
atatttttat atttatcaaa tgcatagtat ggaaaagtct ctagatactt tgggtctagta 360
cctggattat agcgaaatta gccaaatttt caattatata aacagaaaat tatttaggct 420
caaattgcac attggcattg aatttgccga aattgatttt ctagcttcgt ataattgtat 480
tagaagcatt gatttttttt tggaatacaa aaaggcgtca agtgaaggaa aaattgattt 540
ggagatata                                     549

```

<210> 1828

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1828

```

cacaagacat gtcagctgag tcttagtcct tcgtctgctg ctaaaagtat attagaaaat 60
cttgtatttt taatatttgt gtttgatttt ccagtcgggt acgttatata cattatcaca 120
gaatcatggg gcaagattcg ggagtaaagg attttccttc tttgcctgaa gacaaaatag 180
atatgattgc tgctaccagc ttattacaac aacatgctgc ggatatccgt cagcaaaaaa 240
ttaactggac atcatactta cagtctcaa tgatcactca agacgacttt aatttcataa 300
gtgcttatga ctctactgat tctaagggcc gcataaggct tctcacagat cgcactcaag 360
cagctaaaac atttttgaac atcctaacac atgtcagcaa agatcaaaca attcaatatg 420
ttttaatttt gattgatgac atgctgcagg aggatagatc cgtgtcgata ttttccatga 480
gtatgctgta aaaccaagaa agtgatgggc ctttcatgaa ttattgatcg cagacagttc 540
attgtacat                                     549

```

<210> 1829

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1829

```

ggcctcgctt gccgctgca atgccccggc ttcacgccc gaacgctgca actgagcaac 60
atacgcaatc tgctccgccc acacgttatg gaactggcga gccatcgccc tcagccccga 120
cgctcgggtct gtggtcagct tcccgaaggc ttcagcgacc ttgtccacct ccacgcccga 180
tgcaaggagg aaacgcgcga cactctggct gatggacgca atctgagcct caccgcttac 240
ccccgcctta accagtgcgc tgagtgactc gctggtctgg ttaaactgca gccctgccc 300
ctgcccggct ctggacagga ccagcatagc atctgcgcgc agtcccgcgt attgccggaa 360

```


aggaccagcg ttttgttgaa atcggacagg gttgagttgc ctgataccag gcatacgcca 420
gcgccaccgt cgcaccgag cgaggtggcc ccacatcggc agggatgatc accggcaagc 480
cccctgaaca tggggatata cgccgaagga gtcttacctg cccctgtgc anaggatagc 540
acggatttg 549

<210> 1830

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1830

aagtgtcagg gcgtcttaag gatcatttgg acttcttaat taatttccaa ataatggctg 60
atgcaaccga aggaaacatt gaaaaactat ctaaaaatga gctcaaaagg aggttgaaaag 120
cagagcaaaa ggcaaaagaa aaagctgaaa aggcagcagc tgtaccagaa aagcctgtaa 180
aagaagccaa aaaggaagta acaaaagttg atgaagaaat tagcccaaata gaatatttta 240
aactccgaac tgctgcagta actgcattaa aaaattcaaa tgatcctgat cagcatcctt 300
atcctcataa atttcatgtt agcattgggt tgactgagtt tatagagaaa tacaaggatc 360
ttcaggatgc gcaaatattg gaagatgtta ctttgtcagt tgnccgaaga gtgccgccat 420
cagggagtct ggagctaaac ttgtatttta tgattgaggg gagaagggtg caaaattcaa 480
gttatggcaa atgcaaatat tagttctgag gaaaaatcca gaagacacat cgaaatccgc 540
gtggtgtat 549

<210> 1831

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1831

aatcgcgccg gtgatcattg agccgattgt ccaggcgca ggccgggatgc gcatgtacca 60
tccggaatgg ttaaaacgaa tccgcaaaat atgcgatcgc gaaggatatc tgctgattgc 120
cgacgagatc gccactggat ttggtcgtac cgggaaactg tttgcctgtg aacatgcaga 180
aatcgcgccg gacattttgt gcctcggtaa agccttaacc ggccgcacaa tgaccctttc 240
cgccacactc accacgcgcg aggttcgaga aaccatcagt aacggatgaag ccggttgctt 300
tatgcatggg ccaactttta tgggcaatcc gctggcctgc gcggcagcaa acgccagcct 360
ggcgattctc gaactctggc actggcagca acaggtgggc ccggtaccca attcgctat 420
agtgagtcgt attacaattc actggcgtcg ttttacaacg tctgactggg aaaaccctgc 480
gttaccacac ttaatcgctt nacacatccc ctttcgcagt ggcgtatagc aaaggccgac 540
cgatcgctt 549

<210> 1832

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1832

```

aggacaacat cagagtttga aattgtacgc agcattaaag aaaaagcctg ctacttagct 60
agtaatcctc aaaaggaaga aagtgtagac acagaaaaaa ttcaatatgt tcttcctgat 120
ggttacccat tagatattgg tccagctaga tttagagctc cagaagtttt attcagacct 180
gatctaactc gtgaagaaag tgaaggcttg catgaagttc ttttatattc tatcgaaaaa 240
gctgaacgag atttgaggaa agtattgttt caaaacattg ttttatcagg tggttctact 300
ctattttaaag gctttggtga cagactgttg tcagaaattc gaaaacaagt accaaaagat 360
atgaagatta agatttctgc tccacaagag cgtttatatt ccacctggat aggagggtcc 420
atttagcttc attagataca ttaagaaaat gtgggtttct aagaaagagt atgatgaaga 480
tggcaaagag ctgtcataga aaacttctaa taatagcatt gcttctcact cantaatatt 540
aaggtattt 549

```

<210> 1833

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1833

```

tgcattccg ccacggcgat attttacacg tgacgaacgc cagcgacgac gaatgggtggc 60
aggctcgccg ggtacctcct ccaggaggng ctgatgaagg tacgntggc atagttcctt 120
ctcgcaaacg ttgggagagg aaacagaagg ccagagatcg cagcgtcaag ttccagggac 180
aacagcctgg acaagtggg gataagcaaa gcacgctcga taggaagaag aaaaataact 240
ttgattcag cagaaagttt ccatttatga agtctaaaga tgataagagc gaggatggat 300
ctgatcagga acgcgaagaa aacgttcttt cttatgaagc tgtgcaacaa ttgactataa 360
attcaccaga ccagtcataa tattaggacc gctcaaggat cgcgtcaatg atgatttgat 420
ttccgaattt cccgaaaaat tcggcagctg cgtcctcata ctacaagacc gaagagaggt 480
atgaagtggg ggcgagatat cacttctggc atccgcgaac aaatggacgt gatatcaaat 540
attgttatt 549

```

<210> 1834

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1834

```

aatttcgtgc agcagangta aataaatctg gcggagcctg ggagctccgc cagagccgtt 60
aaacagctgg catattgcgc ccgtaataaa tctcgcgcat ttctttccac agcgagcgg 120
taatttcctg gcgctcgctg tcggttaagt cttccggttt ggtgtggaac atgtagtgct 180
taaggctcgaa ctctttaagc aacatcttgg tatggaagat attttcctga tagacgttca 240
catccaccat gtcatacagc gccttcatat cgtcagacat aaagttctga atcgatttaa 300
tctcatggtc gataaagtgc ttcataaccg taatgtcgcg ggtaaaaccg cgcacgcgat 360
aatcaatggt tacgatatcg gactcaagct ggtggatcag gtaattcagc gccttcagcg 420
gagaaatcac gccgcaggta gagacttaat atcgggcgga aggacataaa ccgcttagga 480
tgactttcng gtaggatgtc gcaaatatga ctttataaga tggcacgacc gtttgcaagt 540
gccgggtgt 549

```

<210> 1835

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1835

```

gtggcttcgg ctttgataac ttctcaaga ttattcattt tgattgtggt aaaaaatgcc 60
ttctttaaac ttgagcgaaa atgatcgtgc tgtgttaa atgtatattta atccgtctca 120
accattagga gaaaatgcat tcgaggaaga tattccagaa ttattagaag atcaagaaga 180
cccggaaaca ccatttttga acgacgcacg agccttggaa gctgaagctg tccgtttggc 240
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cggtcgtcct tcaggttaca acaatcgcg acaagttcac aggtggtggc gacgagacca 360
agatgctttg tcgattttaa ctatggctgt gaacctcagc tccggaaaag gaagatctgg 420
tgtgcaggct ttatgtcaac gggcctctgt cagaaaaact ggtgaagacg attagctcgg 480
gaagatttaa caaagcgaag cttagctcac ttgcaaaaat cagtagtgga atgaatctta 540
tntgnttat

```

<210> 1836

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1836

```

ctttactccg agcaagtngt gggacgactc attattattt attttgtgat aatcttttaa 60
atctcctaaa atgaggatct acaaagacat cattactggt gatgagatgt tctcagacac 120
atataaaaata aagttggtcg atgaagtttt gtacgaagtg accggcaa attggttcaag 180
gtctcaaggg gatataccaa ttgaagtttt caaccatct gctgaagagg ctgatgaagg 240
aactgaaaca gccacggaat ctggtgttga tgtggtctta aatcaccgcc tttgtgaaac 300
ttttgccttc tcagataaaa aatcatacac tctttattta aaagattata tgaaaaaatt 360
ggtggcgaaa ttagaggaga aatcaccaga acaagttgag gtattcaaaa caaatatgaa 420
caaagtcagt aaagaaattht aagccgttta aagaaatgca aatgttcact ggtgaatcaa 480
tggttgtgat ggcattggtg ctcttatgga atatcgtgaa atagatggtg aatctgtcaa 540
ttctgtgtc

```

<210> 1837

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1837

```

gttcaataa ttctttatgt tttaacaat cgttatagtt taatagatgg tcagttataa 60
atttagcgtt tatctattgt tatttggtac tcgttagtta gtattatttt aagtaggatt 120
cagtgaagtga tatttgtgaa ttactcgaaa cacatacata tataaactca gaataatggg 180
aactcgagat gacgaatacg attatttgtt caaagtgggt ctaataggag actcgggtgt 240
aggaaaaagt aatttgcttt ctcgcttcac tagaaatgaa tttaatcttg agagtaaattc 300
cacaattgga gttgagtttg caacaggagg tatacagggt gatggtaaaa caattaaggc 360

```

gcaaatatgg gatactgctg gccaaagaaag gtatagagct ataacatccg ctattataga 420
 ggagctgtgg tgctctctta gtttatgaca ttgcaaagca cccaacttat gaaaatgtag 480
 aacgtggtnc gagagctaag agatcatctg acagaattag tgtatgctgt gggaaacaaa 540
 ttgtctgaa 549

<210> 1838

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1838

atTTTTTTTg ccgggtcgta gtaaccaatt taaggataat ggctcctcca ccatacgag 60
 acttgggaaa acaagctagg gaggtattta acagtggcta tcattttggt cttttcaa 120
 tgaatttgaa aactaaaact gcctctgggg ttgaattcac ttcaggagga acttntga 180
 atgaaactgg caaggtattt ggatctttgg agacaaaata caaagtaagt gattacgg 240
 tcactttttc tgaaaaatgg aacacagaca atacttttagc tacagaagtt tccataca 300
 atcaaatagc taaaggtttg aaagtatcat tcgactgctc tttcgacca caaacgggaa 360
 gcaaaactgg tgTTTTTgaa actgccttct tacatgatag tgttgcagta aatgctga 420
 taaatttgaa tttatcagga cctttgatca atgccagcgc agtagttgg atcaaggat 480
 gtggcggtat aaactggatt tgntctgaaa ttcaaggcac aaagacactt tgccttgg 540
 ctcacagga 549

<210> 1839

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1839

attaaaatat tattgtnta attgaatttt gagttggttt tgagaagcta gtgccatgtt 60
 tgattcaagg attactgtcg gtttgctgct gacaataagc tgttacttag tgctgtcc 120
 gccccaaaga ggaggattcc aacctcaggc tccaggaaac caaatacca ttttacgg 180
 ttcattcgaa cctaattccag atggttccta caattacaac tatgaaactg gaaatgga 240
 tcaagtagaa gagcaagggt acttgaaaaa tgctggaaat ccacaaacag aagctcag 300
 gatgcaagg tctactcct acacggggcc cgacggagtc gtctacacgg tgaaatacat 360
 agccgacgaa aacggtttcc gggccgaagg cgcccacata ccctcggcag gaggaccc 420
 aaggcggcgc ccggcggtag attttctag aaggaaaaca tctagnccca ccacaacatt 480
 ttaattatga aaaacacagc gccatgatgc gagtcgagga acaatggact ataataat 540
 atctncgng 549

<210> 1840

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1840

```

gccaaacttgt atgccacgtc gaaaacacta aaaacaaatc gaattaaata aaattataaa 60
ataaaacaaa tataataaca aagtattaaa acgtgtgata tattatttat attattatta 120
ttatcaaaaag tgtgagaacg tacaacgctc ttgttaattt tccagacagg aatttttagt 180
gttgccatat atataagcgc gaggaaagat ttacatacaa gatgggttgc ggaatatcgt 240
tcgttaaata cgttctgttc gtgttcaatt taatatttgc gctatgcggt ctgcgagtgc 300
tcgccgttgg cgtggtcttc aaattgaagt tctcagagat ccagcaaagc ctccaggact 360
taaacgtcca ggccgcacca atactcttca tcaccgttgg aagcatagtc ttcataatcg 420
cttcttcggg tgctgcggag cgattaggga aagtcattgt atgacagtca cttcgcagtc 480
ttttaatcgt ttgctgacgc caagtcgtga tcgcgctgtg tcttcgctat gcgtgcatca 540
acaagatct

```

<210> 1841

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1841

```

aattaaacgt gcaactggaag gcggcataaa tttctttgat accgccaaca gttattctga 60
cggcagcagc gaagagatcg tcggtcgcgc actgcgggat ttcgcccgtc gtgaagacgt 120
ggtcgttgcg accaaagtgt tccatcgcgt tggtgattta ccggaaggat tatcccgtgc 180
gcaaattttg cgctctatcg acgacagcct gcgacgtctc ggcatggatt atgtcgatat 240
cctgcaaatt catcgtctggg attacaacac gccgatcgaa gagacgctgg aagccctcaa 300
cgacgtggtg aaagccggga aagcgcgtta tatcggcgcg tcatcaatgc acgcttcgca 360
gtttgctcag gcaactggaac tccaaaaaca gcacggctgg gcgcagtttg tcagtatgca 420
ggatcactac aatctgattt atcgtgaaga agagcgcgag atgtccact gtgtatcagg 480
aggcgtggcg gtattcatgg acccgctgca agggccgttg accgtcgtgg gagaactccg 540
acgntgngt

```

<210> 1842

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1842

```

aatatcgccc tgaaccntcg aaacctgaat ggttttctcc ggttgngggg taaaccactg 60
gatgtaacgc agcgggaagg gaagggcaaa cagcacgacg gccaccacca gcggacgcca 120
gttgcgtttg accaacgcca gtgccagcag gccactaacc atcatcagca ggaagttaat 180
ggcttccacg cccattatcg gtgccagccc ttttaacggg ccatcaatct ggctatagcc 240
gaactgtaac cacgggaagc cggtcagtac ccaaccgcgc agaaactcgg tcacttgcca 300
gagggcaggg gcggcaatcg ctacgcgcag ccagggtggt ttcggccaca gacgcgacag 360
cacgccagca aacagtccgg tatacagcga caaatagcc gcagcagcac caccaggaag 420
atgttaaccg ggccaggcat tccgcaaagg tcgcgatgct gacatagacc cagttatccg 480
ctgcaaagag gcnaatncca gcaaaagcca atagcggcag atggagtgac ggcggtaaa 540
gcaacgctg

```

<210> 1843
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1843
 acttacttca agtcaagcgt catcgccgtt cgtacccaaa acccaaacaa gacttattgt 60
 gttcatttgt gttgtttagt gctgcatttg aggtcctcaa tactatcttg aaataataaa 120
 atggctcgta ctaaacaac tgcccgttaag tcgaccggtg gaaaagctcc acggaaacaa 180
 ttagctacga aggccgcgcg taaaagtgcg ccatccactg gaggcgtcaa gaaaccccat 240
 cggtatcgtc cagggtactgt tgctcttcgt gaaatccgtc gttatcagaa atccactgaa 300
 ttggtgatcc gaaaattgcc attccaacgt ttggtgagag aaattgccca ggatttcaag 360
 actgatctac gtttccagtc agctgctatt ggtgctctac aggaagccag tgaggcttat 420
 ctcggtggtt atttgaagat acaaatttgc gcgccattca tgccaagagg gtaacaatta 480
 tgccataaga tatccagtta gcgcggcgaa ttcgtggtga cggctaaaat cggttataag 540
 aancaattt 549

<210> 1844
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1844
 aatttctggt cagactttga ataccgactc aataaacacg gctctgtatt aaatgctgta 60
 ttaatcatgc tggcgcaaca tgctctgctt atagcaattt caagcgactt aaatgcatat 120
 ggtgttgtgt gtgagttcga ctggaatgat ggaaatggtc aggaaggatg gcctccaatg 180
 gatggcagcg aaggaataag aattaccgat atcgatacat caggaatatt tgattcanat 240
 gatatgacta tcaaggccgc ctgagtgcgg ttttaccgca taccaataac gcttcaactc 300
 aggcgttttt cgttatgtat aaataaggag cacaccatgc aatatgccat tgcagggttg 360
 cctgttgctg gctgcccttc cgaatcttta cttgaacgaa tcacccgtna attacgtgac 420
 ggatggaaac gccttatcgc atacttaatc agcaggagcc caaagaatgg atcaaact 480
 atggtatcca gactaaatca ctatcgcctt tatggcgata aaagatgttc gtnaaccgca 540
 ccttataaa 549

<210> 1845
 <211> 549
 <212> DNA
 <213> Ctenocephalides felis

<400> 1845
 aattcatccg ttccgcatat attttgagga gctacaacca ggcgacagcc tgttgactcc 60
 ccgccgcaca atgacagagg ccgatattgt taactttgct tgccctcagcg gcgatcattt 120
 ctatgcacat atggataaga ttgctgctgc cgaatctatt ttccgtgagc ggggtggtgca 180
 tgggtatttt gtgctttctg cggctgcggg tctgtttgtc gatgccggtg tcgggtccggt 240
 cattgctaac tacgggctgg aaagcttgcg ttttatcgaa cccgtaaagc caggcgatac 300
 catccagggt cgtctcacct gtaagcgcaa gacgctgaaa aaacagcgta gcgcagaaga 360

```

aaaaccaaca ggtgtggtgg aatgggctgt agaggatttc aatcagcatc aaaccccggt 420
ggcgctgtat tcaattctga cgctggtggc aggcagcacg gtgatttgtc gattaatcgg 480
tgaatgaagg naacggcgaa tagttgcctt tatttacta agtttgacg ttgcacatta 540
tgcattgatg                                     549

```

<210> 1846

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1846

```

aggaagaaga gatggangcc taccgcaaac agaccagttt ggaaatcgag caattgaaca 60
tgcgcgttgc cgaggctgaa accaaattga agaccgaagt tcaacgcac aagaagaagc 120
tccagatcca aatcaccgaa ttggaattgt ctttgacgt tgccaataag actaacatcg 180
atttgcagaa gaccatcaag aagcaatctt tgcagttgac cgagatccag gccgcctacg 240
atgatgtcca acgccaattg caagtgcctt tggaccaatt gtccgtctcc cagagacgcg 300
tccaatcttt gactgctgaa gtcgaggaag tgcgcagcaa ctacgaatct ttgtcgcgcg 360
ccaaacgcca agtcgaacag cagtacgagg agagcgctgc cgcatcaacg agttgacggt 420
aatcaacgtc aatttgcaa gctcaagagc aagatcgagc aggaattgtc gctttgagcg 480
gagactcgag caagtcccca ggaattgaga gtcagcgacg agagatccan gcgtcagtcg 540
actgaatca                                     549

```

<210> 1847

<211> 549

<212> DNA

<213> Ctenocephalides felis

<400> 1847

```

gtcttntaaa tacatcatga aaccttttgn gggattanna ttgtgcctgg cgggtggtgan 60
ctgcggtgat gtatccgaaa agaaacaaga gaaacgcgga ctggccggn cggcacgca 120
cggaggcggt gccttactgt natccgntgg aggacacggn ggnctcggtg gaggatacgg 180
tggcgatgat ggaggtggtt ntggagcggt tctcgcggt ggactcgcg gtgatttgg 240
cggcgagcn nnattcgcg gaggtgctgg attngcgga ggattnggag gcggcngctg 300
gangtggnng cggtgcggt ggtggcgng ctggtcttgg tggccagtc acccttgga 360
cacgcagtna cgaactacta ctgtgacaca nggtattcca tacgccgtcc acaaccttac 420
ccantgactg tnacacgcac cgttgagta ccancntca accnntncn ttgtncttcc 480
aagactgtnc agnctctgtc ctcaagtnac cagtgcagtc ccctnaccng ccatggttgn 540
ccnctgcnc                                     549

```

<210> 1848

<211> 508

<212> DNA

<213> Ctenocephalides felis

<400> 1848

```

gaancctaaa ggtgaaggat acaaaggcag taaattccac cgtgtcatca aggacttcat 60
gattcaaggt ggtgacttca ccaggggaga tggaactgga ggccgctcaa tttatggaga 120
acgttttgct gatgaaaact tcaagttgaa gcattatggt gctggatggt tgtccatggc 180
aaatgctggc aaagacacta acggatctca attctttatc actacaaaag ccactggctg 240
gttagatgga cgtcatgttg tattcggaag agtgattaag ggaatggatg tggtagaggaa 300
aattgaatca acatcaacag attccagaga caaaccacaa cgtgatgttg aaattgtaga 360
ctctggtgct gaagctgttt ctgaacccta cgggtgtggc aaagaagatg caactaatta 420
aatgatttat taattttgat aatttttaat cacttcaaga caaattgttc tgataaataa 480
aacatttttt aaaaaaaaaa aaaaaaaaaa 508

```

<210> 1849

<211> 549

<212> DNA

<213> *Ctenocephalides felis*

<400> 1849

```

aattattggc tgggtctntt aaactacaac aagggtaaaa aagatgatgc ggcgtactat 60
tttgcttcgg tagtgaaaaa ctatccgaag tcaccaaagg ctgcagatgc gatgtttaaa 120
gtcggcgctc tcatgcagga caaagggtgac aatgcggctg gctaagtcgc gtttttcgtg 180
ttcatacaca tacgacagca ccgcgaaacc ttgcgtgccg tgctgctggg tggcctcttg 240
cgccagggcg ctacgcagaa tgtcgcggtg agcttcggaa cggttgttat aaccacgacg 300
ctggctcagg ctgtccagcg tctccagtaa atcgtcatca agcgtgatgg tgactcgttg 360
catttgcggt aaaccttttc tgtgtgtcga cggcgcacgg ngaatgcggg taataccgcg 420
ttttgtagca cacgtccggc gtcagaggaa aagggttaatt tctctccacc actgggtttt 480
gacgattgtc gtgtcataac attaccggtg gaaaagcgtt ctacagcgta gtcgtgggtg 540
tgacagnan 549

```

<210> 1850

<211> 348

<212> DNA

<213> *Ctenocephalides felis*

<400> 1850

```

taagcattta tgtatgacta tgtaaaataa atgaatttat attttatcat ttttctaatt 60
caattataat gatgaagaat aaaaaaaaaa tcatcttgtc aaagataact taaaaaataa 120
ttaaatataa atagatttat ctaaaagcag ttcgtcttat gagaatttat attgaaatgc 180
tatgttaact tgtatggcgg tgttgtatatt taaaaataa aacttcttac ctaaagtggg 240
gttggtagaa gtgtttccaa aaccaaattg gctagttgct ggtttggtta atgtattatt 300
aaataaagag tttgaagtag ttgtttgacc aaatcctcca aaaccagt 348

```

<210> 1851

<211> 436

<212> DNA

<213> *Ctenocephalides felis*

<400> 1851

```

agcttgtaa acttctnaat aatatttcca ttccaataa ttataaacta attagcctag 60
acgttatatc cctatttaca aatgtccac tagacttaat actagacgcc atcaccagca 120
gatggagtga aaattaggcc ttcaaccac attatcttta cattgggtta gagaaatcat 180
caaattcatt gtctctaaca cctattttga atttaatgga tcattttatt accaaatttt 240
tggcaccoca atgggatctc ccgcatctcc gtcttttagta gaaatttcct tacaattagt 300
agaaaacaaa atttttaata attataacaa acaaatcttt tattaccgat atgtagacga 360
tatcattctt gtattccgga agaagacatt aacatattta ctgataattt taacaattta 420
ataaaaaact acagtt 436

```

<210> 1852

<211> 147

<212> DNA

<213> *Ctenocephalides felis*

<400> 1852

```

ngtaagaacc ttcaatagcc tcacggggtg ttttgaatcc taatcctaca ttctgtgaa 60
gacgtaagga tttctttttt aaaccgatct tgcggttgag gtttacaccc aactgcttct 120
ggaaggctcg ttcaagtctg atcagcc 147

```

<210> 1853

<211> 285

<212> DNA

<213> *Ctenocephalides felis*

<400> 1853

```

gtattgaatt tttctttctc attctgaaag tattctattt cggatggaga acgaatgctg 60
cttgcaaaa tcattgatta tattataaat catacgaaca aatttatctc gaatatttat 120
tatagcgtca tattgatcta ataaaagaaa aaaagcagtt caacataaaa atattggaaa 180
aagtgtatc attgcaaaat atccaagtat tgcttataat atcgcaatta tatgtataaa 240
cttcgcaagt cgagtgaac gttaacgta agcgcggttt gtggt 285

```

<210> 1854

<211> 261

<212> DNA

<213> *Ctenocephalides felis*

<400> 1854

```

ctaaatgaaa ttgtaatttt aaatatgtaa gaattataaa aaatagaagt aatatgatat 60
attatcaaat aataaaatga ttaaaattaa agtattgatg ataagaaaat ttaataataa 120
ttaataaaaa aaaatataac ttaataaat gaattttta tcatcaacaa attacacagg 180
aagaagttag aagtaaataa taaaaaaatc ttcagtaaac tttccaagta ttcgctcagg 240
cgtatttttag taacttttg t 261

```

<210> 1855
 <211> 332
 <212> DNA
 <213> Ctenocephalides felis

<400> 1855
 atccttcagc acatttgcaa ccaatataac attctctaga acaagggtcca ggtaaatacgt 60
 tcatgtagtt agcacaagtt cttggacaag aagtgccaca ggaagtaaatt tcttcatttt 120
 ctgggcaagt tgtgttcaca gcaggcaaag gatcaacaag gtcttctgga agaatttcac 180
 ctggaagagt ttcttctgga agcgtttcat cacagtagac aaaagcagcc aacacaaggc 240
 aactcaatac agtaactaat ataactttca ttttgtaaca aacttttctt cactctaaaa 300
 tagatctaaa aattcaaatac gatcgatcgc ag 332

<210> 1856
 <211> 341
 <212> DNA
 <213> Ctenocephalides felis

<400> 1856
 gagcatgggt tggacgcaga aataagtctc cacaagctat ggctgcttgt gtcagtcgtg 60
 cttgggtggcg ttggcagcac aaatatattc acccaagaaa agctggaatt gcaggattct 120
 atcaattgac tgttggatca atgattttgt tctatgcttt gaactacggc aagatctctg 180
 ctcataagaa ctacaaatac cactaaaaacc aaacatctta cgatggtagt gtgtctgttg 240
 atggcagaat aaattttctaa atgtaaaatac tgtatcaata tacaattcaa tatattaaat 300
 tacacgagaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a 341

<210> 1857
 <211> 238
 <212> DNA
 <213> Ctenocephalides felis

<400> 1857
 ttctcatcca atcaaatttt tctaattctt ccataataat cggaagaacg agcattcccg 60
 gtgcggccat tactattctt gataaaacaa cttgactgat tccctttgca gcagctaacc 120
 gtgactttcc tataatgcgg ccttcactat ctacaacgtc tattcctgct aataattctg 180
 tttgacgcat catcggaata ttaacgcaat tagcagctgc tactgcggca aaaggaac 238

<210> 1858
 <211> 263
 <212> DNA
 <213> Ctenocephalides felis

<400> 1858
 ccaaatttta ttgtgattn ngtaacacaan ntgtganann ttttgtggaa ncanaanang 60
 tantggtntt gcngttaant attataagga tactaatagt gatgttgtaa gagttaggac 120

taatagatga gtcttcttca attttgataa acatattttt ataatctgtg ttaaattttg 180
cacttgtaat gctgtgcttt ttaatgaata aacatgcaat attaaacttc gaaaaaaaaa 240
aaaaaagtta attncttgct tgt 263

<210> 1859

<211> 613

<212> DNA

<213> Ctenocephalides felis

<400> 1859

agctgcccac tatagggcta aagcggccgc cngggcaggt gttggacaaa aatattttaa 60
attaagaaga aataaatgaa atatttataa ttattaaaga atcttgatc gtgcaaaaca 120
taaatgatat ataaattaat ttcgatctct taataaaagt attatttcaa ttaccttatt 180
tgatgagaaa atgcacaaca aaatcctggg cctgggtgtt taccatgtcg tcctgatgtt 240
taccatggta gtcgccaaga ctacacatga agacaccaat gataattcta cagacgtctt 300
actggagttg cccaaatcga tgaacaatga tgaaaagttg ttcttgacaa ctggtcaa 360
tttgaagggt actactgtat atagtgcga attggcagat ttcaatataa cagaaaatac 420
agtaaacgta acagccgaca aagtagccct aaaagaaatc acacctgacc atcaccatcc 480
agtagtgact tctacacaaa aaacaatttt aaacgcatcc acgaccgttg aaaaaaatcc 540
tggacatcaa accagtattt cagaagaatc taccacaaaa ttggtaaaaa caaccactga 600
agacaaccac ctc 613

<210> 1860

<211> 613

<212> DNA

<213> Ctenocephalides felis

<400> 1860

gaggtggttg tcttcagtgg ttgtttttac caattttgtg gtagattctt ctgaaatact 60
ggtttgatgt ccaggatttt tttcaacggt cgtggatgag tttaaaattg tttttgtgt 120
agaagtcact actggatggt gatggtcagg tgtgatttct tttagggcta ctttgtcggc 180
tgttacgttt actgtatttt ctgttatatt gaaatctgcc aattcgtcac tatatacagt 240
agtcccttcc aaaatttgac cagttgtcag gaacaacttt tcatcattgt tcatcgattt 300
gggcaactcc agtaagacgt ctgtagaatt atcattggtg tcttcatgtg tagtcttggc 360
gactaccatg gtaaacatca ggacgacatg gtaacaacc aggaccagga ttttgttgtg 420
catttttctca tcaaataagg taattgaaat aatactttta ttaagagatc gaaattaatt 480
tatatatcat ttatgttttg cacgatacaa gattctttaa taattataaa tatttcattt 540
atcttcttctt aatttttaaat atttttgtcc aacacctgcc cnggcggccg ctttagccct 600
atagtgggca gct 613

<210> 1861

<211> 2739

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (191)..(2206)

<400> 1861

agctgcccac tatagggcta aagcggccgc cngggcaggt gttggacaaa aatattttaa 60

attaagaaga aataaatgaa atattttataa ttattaaaga atcttgtatc gtgcaaaaca 120

taaagtatat ataaattaat ttcgatctct taataaaagt attatttcaa ttaccttatt 180

tgatgagaaa atg cac aac aaa atc ctg gtc ctg gtt gtt tac cat gtc 229

Met His Asn Lys Ile Leu Val Leu Val Val Tyr His Val

1

5

10

gtc ctg atg ttt acc atg gta gtc gcc aag act aca cat gaa gac acc 277

Val Leu Met Phe Thr Met Val Val Ala Lys Thr Thr His Glu Asp Thr

15

20

25

aat gat aat tct aca gac gtc tta ctg gag ttg ccc aaa tcg atg aac 325

Asn Asp Asn Ser Thr Asp Val Leu Leu Glu Leu Pro Lys Ser Met Asn

30

35

40

45

aat gat gaa aag ttg ttc ctg aca act ggt caa att ttg gaa ggg act 373

Asn Asp Glu Lys Leu Phe Leu Thr Thr Gly Gln Ile Leu Glu Gly Thr

50

55

60

act gta tat agt gac gaa ttg gca gat ttc aat ata aca gaa aat aca 421

Thr Val Tyr Ser Asp Glu Leu Ala Asp Phe Asn Ile Thr Glu Asn Thr

65

70

75

gta aac gta aca gcc gac aaa gta gcc cta aaa gaa atc aca cct gac 469

Val Asn Val Thr Ala Asp Lys Val Ala Leu Lys Glu Ile Thr Pro Asp

80

85

90

cat cac cat cca gta gtg act tct aca caa aaa aca att tta aac gca 517

His His His Pro Val Val Thr Ser Thr Gln Lys Thr Ile Leu Asn Ala

95

100

105

tcc acg acc gtt gaa aaa aat cct gga cat caa acc agt att tca gaa 565

Ser Thr Thr Val Glu Lys Asn Pro Gly His Gln Thr Ser Ile Ser Glu

110

115

120

125

gaa tct acc aca aaa ttg gta aaa aca acc act gaa gac aac cac ctc 613

Glu Ser Thr Thr Lys Leu Val Lys Thr Thr Thr Glu Asp Asn His Leu

130

135

140

ggg gta aag agc ctg aat gaa cct ggt gat gaa caa gaa tta aaa aaa 661

Gly Val Lys Ser Leu Asn Glu Pro Gly Asp Glu Gln Glu Leu Lys Lys	
145	150 155
cca tca tca cat ggt aag gag cat att tct tta cca gtg gct tca cca	709
Pro Ser Ser His Gly Lys Glu His Ile Ser Leu Pro Val Ala Ser Pro	
160	165 170
gta cca cca gta tcg cat atc ttc cag gct aca cca gga gac ctt tgt	757
Val Pro Pro Val Ser His Ile Phe Gln Ala Thr Pro Gly Asp Leu Cys	
175	180 185
cca gcc ttc gac gat gca gat cgc ttc acc cag aca gaa ctt ttg tcc	805
Pro Ala Phe Asp Asp Ala Asp Arg Phe Thr Gln Thr Glu Leu Leu Ser	
190	195 200 205
agg ctg aca aac gat tgc agg tac gat aag ctg gag cgc cct ttg ggg	853
Arg Leu Thr Asn Asp Cys Arg Tyr Asp Lys Leu Glu Arg Pro Leu Gly	
210	215 220
cct cac aat ggt gca ggg ccg ctc ccg gtg gcc gcc aga att tac gtg	901
Pro His Asn Gly Ala Gly Pro Leu Pro Val Ala Ala Arg Ile Tyr Val	
225	230 235
tat ttt ata caa aat acg gac gcg cac gaa ttg tca ttt tcc gtg acc	949
Tyr Phe Ile Gln Asn Thr Asp Ala His Glu Leu Ser Phe Ser Val Thr	
240	245 250
gtc ctc ctc caa ttt cgt tac cag gac gcc aga ttg gcc tac aaa aaa	997
Val Leu Leu Gln Phe Arg Tyr Gln Asp Ala Arg Leu Ala Tyr Lys Lys	
255	260 265
gtg gca ccc acc agg acg gtc atc atg gcc gaa tcg cag ctc agg gac	1045
Val Ala Pro Thr Arg Thr Val Ile Met Gly Glu Ser Gln Leu Arg Asp	
270	275 280 285
aaa atc tgg gta cca cat gta ttc gtt gcc aac gag aga tct tcc cag	1093
Lys Ile Trp Val Pro His Val Phe Val Ala Asn Glu Arg Ser Ser Gln	
290	295 300
gtt atg ggc aca gat gcc caa tct aag gac atg ttg gtg tca gta gct	1141
Val Met Gly Thr Asp Ala Gln Ser Lys Asp Met Leu Val Ser Val Ala	
305	310 315
cct gat ggt aca gtc gtc ttt tcg gtc agg atg aag gca act ttg tac	1189
Pro Asp Gly Thr Val Val Phe Ser Val Arg Met Lys Ala Thr Leu Tyr	
320	325 330
tgt tgg atg aat tta agg aaa ttt cct ttt gat gaa caa cag tgt cag	1237

Cys Trp Met Asn Leu Arg Lys Phe Pro Phe Asp Glu Gln Gln Cys Gln	
335	340 345
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Met Met Leu Glu Ser Trp Lys Tyr Asn Thr Ser Glu Leu Leu Leu Thr	
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tgg gaa cca act gca cca gta act tta gca cca gaa cta cat ttg acc	1333
Trp Glu Pro Thr Ala Pro Val Thr Leu Ala Pro Glu Leu His Leu Thr	
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gaa tat gtc ctt act gac atg tgg gta aat gaa aca gtt gtc aag gct	1381
Glu Tyr Val Leu Thr Asp Met Trp Val Asn Glu Thr Val Val Lys Ala	
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gat ttg gat gac ctg aga cac gga gca ttt ggt ggg aca tac agt gcc	1429
Asp Leu Asp Asp Leu Arg His Gly Ala Phe Gly Gly Thr Tyr Ser Ala	
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tta agt ttc acg att caa ata agt cgt gaa atg ggt tac tat tta atg	1477
Leu Ser Phe Thr Ile Gln Ile Ser Arg Glu Met Gly Tyr Tyr Leu Met	
	415 420 425
gat tac ttt ttg cca tca gta atg atc gtg tcg tgt tcc tgg gta agt	1525
Asp Tyr Phe Leu Pro Ser Val Met Ile Val Ser Cys Ser Trp Val Ser	
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ttt tgg ctg gca gca gac caa tca gca ccc aga gtc acc tta ggt aca	1573
Phe Trp Leu Ala Ala Asp Gln Ser Ala Pro Arg Val Thr Leu Gly Thr	
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agc acc atg tta tca ttt atc act tta gca agt gcc caa gga aaa act	1621
Ser Thr Met Leu Ser Phe Ile Thr Leu Ala Ser Ala Gln Gly Lys Thr	
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Leu Pro Lys Val Ser Tyr Ile Lys Ala Ser Glu Ile Trp Phe Leu Gly	
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tgc acc ggg ttt att ttt ggg agt tta gtg gaa ttc gcg ttt gtc aac	1717
Cys Thr Gly Phe Ile Phe Gly Ser Leu Val Glu Phe Ala Phe Val Asn	
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Thr Ile Trp Arg Arg Arg Lys Asn Val Glu Leu Lys Lys Val Asn Ser	
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Lys Tyr Ile Leu Lys Ser Thr Leu Thr Pro Arg Leu Ala Arg Lys Glu
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 545 550 555

cag gat ttg gga aga ggg att agg gtc ttt ccg ccg cct ttg gtc aag 1909
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gct agg tct tgt tcc agt ctg gat agg agt aat gga tcc ggg aat ttt 1957
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 575 580 585

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 610 615 620

gaa aac gaa gaa cct gca caa att gtt cac cac acc tgg acg acg atg 2101
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aca cct caa gaa att tcc atg tgg att gac aaa agg tcc aga att tgt 2149
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 Tyr Tyr Leu
 670

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tgacaaattt atataaaatt aaacaattta taatattgtc gaacatctta ccaccctaca 2486

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<210> 1862

<211> 672

<212> PRT

<213> Ctenocephalides felis

<400> 1862

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 20 25 30
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 35 40 45
 Lys Leu Phe Leu Thr Thr Gly Gln Ile Leu Glu Gly Thr Thr Val Tyr
 50 55 60
 Ser Asp Glu Leu Ala Asp Phe Asn Ile Thr Glu Asn Thr Val Asn Val
 65 70 75 80
 Thr Ala Asp Lys Val Ala Leu Lys Glu Ile Thr Pro Asp His His His
 85 90 95
 Pro Val Val Thr Ser Thr Gln Lys Thr Ile Leu Asn Ala Ser Thr Thr
 100 105 110
 Val Glu Lys Asn Pro Gly His Gln Thr Ser Ile Ser Glu Glu Ser Thr
 115 120 125
 Thr Lys Leu Val Lys Thr Thr Thr Glu Asp Asn His Leu Gly Val Lys
 130 135 140
 Ser Leu Asn Glu Pro Gly Asp Glu Gln Glu Leu Lys Lys Pro Ser Ser
 145 150 155 160
 His Gly Lys Glu His Ile Ser Leu Pro Val Ala Ser Pro Val Pro Pro
 165 170 175

Val Ser His Ile Phe Gln Ala Thr Pro Gly Asp Leu Cys Pro Ala Phe
 180 185 190
 Asp Asp Ala Asp Arg Phe Thr Gln Thr Glu Leu Leu Ser Arg Leu Thr
 195 200 205
 Asn Asp Cys Arg Tyr Asp Lys Leu Glu Arg Pro Leu Gly Pro His Asn
 210 215 220
 Gly Ala Gly Pro Leu Pro Val Ala Ala Arg Ile Tyr Val Tyr Phe Ile
 225 230 235 240
 Gln Asn Thr Asp Ala His Glu Leu Ser Phe Ser Val Thr Val Leu Leu
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 Gln Phe Arg Tyr Gln Asp Ala Arg Leu Ala Tyr Lys Lys Val Ala Pro
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 Val Pro His Val Phe Val Ala Asn Glu Arg Ser Ser Gln Val Met Gly
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 Thr Asp Ala Gln Ser Lys Asp Met Leu Val Ser Val Ala Pro Asp Gly
 305 310 315 320
 Thr Val Val Phe Ser Val Arg Met Lys Ala Thr Leu Tyr Cys Trp Met
 325 330 335
 Asn Leu Arg Lys Phe Pro Phe Asp Glu Gln Gln Cys Gln Met Met Leu
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 Glu Ser Trp Lys Tyr Asn Thr Ser Glu Leu Leu Leu Thr Trp Glu Pro
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 370 375 380
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 385 390 395 400
 Asp Leu Arg His Gly Ala Phe Gly Gly Thr Tyr Ser Ala Leu Ser Phe
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 420 425 430

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 465 470 475 480
 Val Ser Tyr Ile Lys Ala Ser Glu Ile Trp Phe Leu Gly Cys Thr Gly
 485 490 495
 Phe Ile Phe Gly Ser Leu Val Glu Phe Ala Phe Val Asn Thr Ile Trp
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 Gly Arg Gly Ile Arg Val Phe Pro Pro Pro Leu Val Lys Ala Arg Ser
 565 570 575
 Cys Ser Ser Leu Asp Arg Ser Asn Gly Ser Gly Asn Phe Leu Ser Val
 580 585 590
 His Gly Asn Asp His Lys Val Pro Thr Ile Thr Ala Gln Cys Ala Asp
 595 600 605
 Asp Ala Ala Ser Asp Gln Ile Ser Val Cys Val Asp Gly Glu Asn Glu
 610 615 620
 Glu Pro Ala Gln Ile Val His His Thr Trp Thr Thr Met Thr Pro Gln
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 Glu Ile Ser Met Trp Ile Asp Lys Arg Ser Arg Ile Cys Phe Pro Ile
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<210> 1863

<211> 2739

<212> DNA

<213> Ctenocephalides felis

<400> 1863

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<210> 1864

<211> 2016

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (1)..(2016)

<400> 1864

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 Phe Thr Met Val Val Ala Lys Thr Thr His Glu Asp Thr Asn Asp Asn
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 Ser Thr Asp Val Leu Leu Glu Leu Pro Lys Ser Met Asn Asn Asp Glu
 35 40 45

aag ttg ttc ctg aca act ggt caa att ttg gaa ggg act act gta tat 192
 Lys Leu Phe Leu Thr Thr Gly Gln Ile Leu Glu Gly Thr Thr Val Tyr
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agt gac gaa ttg gca gat ttc aat ata aca gaa aat aca gta aac gta 240
 Ser Asp Glu Leu Ala Asp Phe Asn Ile Thr Glu Asn Thr Val Asn Val
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aca gcc gac aaa gta gcc cta aaa gaa atc aca cct gac cat cac cat 288
 Thr Ala Asp Lys Val Ala Leu Lys Glu Ile Thr Pro Asp His His His
 85 90 95

cca gta gtg act tct aca caa aaa aca att tta aac gca tcc acg acc 336
 Pro Val Val Thr Ser Thr Gln Lys Thr Ile Leu Asn Ala Ser Thr Thr
 100 105 110

gtt gaa aaa aat cct gga cat caa acc agt att tca gaa gaa tct acc 384
 Val Glu Lys Asn Pro Gly His Gln Thr Ser Ile Ser Glu Glu Ser Thr
 115 120 125

aca aaa ttg gta aaa aca acc act gaa gac aac cac ctc ggt gta aag 432
 Thr Lys Leu Val Lys Thr Thr Thr Glu Asp Asn His Leu Gly Val Lys
 130 135 140

agc ctg aat gaa cct ggt gat gaa caa gaa tta aaa aaa cca tca tca 480
 Ser Leu Asn Glu Pro Gly Asp Glu Gln Glu Leu Lys Lys Pro Ser Ser
 145 150 155 160

cat ggt aag gag cat att tct tta cca gtg gct tca cca gta cca cca 528
 His Gly Lys Glu His Ile Ser Leu Pro Val Ala Ser Pro Val Pro Pro
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 Val Ser His Ile Phe Gln Ala Thr Pro Gly Asp Leu Cys Pro Ala Phe
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 Asp Asp Ala Asp Arg Phe Thr Gln Thr Glu Leu Leu Ser Arg Leu Thr
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 Asn Asp Cys Arg Tyr Asp Lys Leu Glu Arg Pro Leu Gly Pro His Asn
 210 215 220

ggt gca ggg ccg ctc ccg gtg gcc gcc aga att tac gtg tat ttt ata 720
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 225 230 235 240

caa aat acg gac gcg cac gaa ttg tca ttt tcc gtg acc gtc ctc ctc 768
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 245 250 255

caa ttt cgt tac cag gac gcc aga ttg gcc tac aaa aaa gtg gca ccc 816
 Gln Phe Arg Tyr Gln Asp Ala Arg Leu Ala Tyr Lys Lys Val Ala Pro
 260 265 270

acc agg acg gtc atc atg ggc gaa tcg cag ctc agg gac aaa atc tgg 864
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 275 280 285

gta cca cat gta ttc gtt gcc aac gag aga tct tcc cag gtt atg ggc 912
 Val Pro His Val Phe Val Ala Asn Glu Arg Ser Ser Gln Val Met Gly
 290 295 300

aca gat gcc caa tct aag gac atg ttg gtg tca gta gct cct gat ggt 960
 Thr Asp Ala Gln Ser Lys Asp Met Leu Val Ser Val Ala Pro Asp Gly
 305 310 315 320

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325 330 335	
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Asn Leu Arg Lys Phe Pro Phe Asp Glu Gln Gln Cys Gln Met Met Leu	
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355 360 365	
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370 375 380	
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Leu Thr Asp Met Trp Val Asn Glu Thr Val Val Lys Ala Asp Leu Asp	
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405 410 415	
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Thr Ile Gln Ile Ser Arg Glu Met Gly Tyr Tyr Leu Met Asp Tyr Phe	
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Val Ser Tyr Ile Lys Ala Ser Glu Ile Trp Phe Leu Gly Cys Thr Gly	
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Phe Ile Phe Gly Ser Leu Val Glu Phe Ala Phe Val Asn Thr Ile Trp	
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aga cga agg aaa aat gtg gaa ttg aaa aaa gtc aac agc aag tat att 1584
 Arg Arg Arg Lys Asn Val Glu Leu Lys Lys Val Asn Ser Lys Tyr Ile
 515 520 525

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 530 535 540

tcg ttt aat tcg aat cct gga ggt ggt aat aag gat gat cag gat ttg 1680
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 545 550 555 560

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 565 570 575

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 Cys Ser Ser Leu Asp Arg Ser Asn Gly Ser Gly Asn Phe Leu Ser Val
 580 585 590

cat gga aat gat cac aaa gtt cca aca ata aca gca caa tgt gca gac 1824
 His Gly Asn Asp His Lys Val Pro Thr Ile Thr Ala Gln Cys Ala Asp
 595 600 605

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 610 615 620

gaa cct gca caa att gtt cac cac acc tgg acg acg atg aca cct caa 1920
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 625 630 635 640

gaa att tcc atg tgg att gac aaa agg tcc aga att tgt ttc ccg ata 1968
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 645 650 655

gct ttt gct ata ttt aac ttt ttt tat tgg ata ttt gtt tat tat tta 2016
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 660 665 670

<210> 1865

<211> 672

<212> PRT

<213> Ctenocephalides felis

<400> 1865

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Ser Asp Glu Leu Ala Asp Phe Asn Ile Thr Glu Asn Thr Val Asn Val	65	70	75
Thr Ala Asp Lys Val Ala Leu Lys Glu Ile Thr Pro Asp His His His	85	90	95
Pro Val Val Thr Ser Thr Gln Lys Thr Ile Leu Asn Ala Ser Thr Thr	100	105	110
Val Glu Lys Asn Pro Gly His Gln Thr Ser Ile Ser Glu Glu Ser Thr	115	120	125
Thr Lys Leu Val Lys Thr Thr Thr Glu Asp Asn His Leu Gly Val Lys	130	135	140
Ser Leu Asn Glu Pro Gly Asp Glu Gln Glu Leu Lys Lys Pro Ser Ser	145	150	155
His Gly Lys Glu His Ile Ser Leu Pro Val Ala Ser Pro Val Pro Pro	165	170	175
Val Ser His Ile Phe Gln Ala Thr Pro Gly Asp Leu Cys Pro Ala Phe	180	185	190
Asp Asp Ala Asp Arg Phe Thr Gln Thr Glu Leu Leu Ser Arg Leu Thr	195	200	205
Asn Asp Cys Arg Tyr Asp Lys Leu Glu Arg Pro Leu Gly Pro His Asn	210	215	220
Gly Ala Gly Pro Leu Pro Val Ala Ala Arg Ile Tyr Val Tyr Phe Ile	225	230	235
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355	360	365
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Gly Arg Gly Ile Arg Val	Phe Pro Pro Pro Leu Val	Lys Ala Arg Ser
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Cys Ser Ser Leu Asp Arg	Ser Asn Gly Ser Gly Asn	Phe Leu Ser Val
580	585	590
His Gly Asn Asp His Lys	Val Pro Thr Ile Thr Ala	Gln Cys Ala Asp
595	600	605
Asp Ala Ala Ser Asp Gln	Ile Ser Val Cys Val Asp	Gly Glu Asn Glu
610	615	620
Glu Pro Ala Gln Ile Val	His His Thr Trp Thr Thr	Met Thr Pro Gln
625	630	635
Glu Ile Ser Met Trp Ile	Asp Lys Arg Ser Arg Ile	Cys Phe Pro Ile
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<210> 1866

<211> 2016

<212> DNA

<213> Ctenocephalides felis

<400> 1866

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<210> 1867

<211> 2080

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (45)..(1868)

<400> 1867

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Tyr Thr Lys Thr Glu Ser Ile Thr Asn Asn Ser Leu Glu Glu Leu Tyr
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Leu Pro Glu Lys Gly Ser Ala Glu Gln Glu Gln His Ser Ser Met Ser	
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Ile Phe Phe Val Leu Cys Val Leu Ala Leu Gly Ile Leu Leu Ile His	
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Phe Met Leu Gln Thr Gly Phe Gln Tyr Leu Pro Glu Ser Ile Val Val	
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Tyr Leu Leu Gly Met Ala Asp Val Ala Tyr Asn Leu Ser Phe Val Glu	
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Ser Phe Ala Phe Gly Ser Leu Ile Ser Ala Val Asp Pro Val Ala Thr	
215 220 225	
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Val Ala Ile Phe His Ala Leu Asp Val Asp Pro Val Leu Asn Met Leu	
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Ser Ile Val Leu Cys Leu Ile Gly Arg Ala Ala Asn Ile Phe Pro Leu	
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 Lys Thr Arg Glu Trp Gly Ser Ala Ile Asp Ser Glu Leu Leu Ser Glu
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<210> 1868

<211> 608

<212> PRT

<213> Ctenocephalides felis

<400> 1868

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Leu Ser Lys Thr Ser Leu Pro Pro Asp Gln Asn Ala Thr Ile Glu Asn
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Pro Asp Pro Val Leu Pro Glu Lys Gly Ser Ala Glu Gln Glu Gln His
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Leu Leu Ile His Phe Met Leu Gln Thr Gly Phe Gln Tyr Leu Pro Glu
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Ser Ile Val Val Val Phe Leu Gly Ala Leu Ile Gly Leu Ile Ile Asn
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Ser Pro Thr Ala Phe Phe Leu Val Leu Leu Pro Pro Ile Ile Phe Glu
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Ser Gly Tyr Asn Leu His Lys Gly Asn Phe Phe Gln Asn Ile Gly Ser
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Ile Leu Val Phe Ala Ile Phe Gly Thr Ala Ile Ser Ala Phe Val Val

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Pro Val Ala Thr Val Ala Ile Phe His Ala Leu Asp Val Asp Pro Val		
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Leu Asn Met Leu Val Phe Gly Glu Ser Ile Leu Asn Asp Ala Ile Ser		
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Ile Val Leu Thr Thr Ala Val Leu Glu Ser Asn Asn Pro Leu Met Thr		
260	265	270
Thr Ala Glu Ala Val Val Ser Gly Leu Asn Arg Phe Cys Leu Met Phe		
275	280	285
Phe Ala Ser Ala Gly Ile Gly Val Val Phe Ala Leu Ile Ser Ala Leu		
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Leu Leu Lys His Val Asp Leu Arg Lys Tyr Pro Ser Leu Glu Leu Gly		
305	310	315
Met Met Leu Val Phe Thr Tyr Ala Pro Tyr Val Leu Ala Glu Gly Ile		
325	330	335
His Leu Ser Gly Ile Met Ala Ile Leu Phe Cys Gly Ile Val Met Ser		
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His Tyr Thr His Phe Asn Leu Ser Thr Val Thr Gln Ile Thr Met Gln		
355	360	365
Gln Thr Met Arg Thr Leu Ala Phe Ile Ala Glu Thr Cys Val Phe Ala		
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Tyr Leu Gly Met Ala Ile Phe Ser Phe Arg His Arg Val Glu Pro Ala		
385	390	395
Leu Val Ile Trp Ser Ile Val Leu Cys Leu Ile Gly Arg Ala Ala Asn		
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Ile Phe Pro Leu Ser Trp Leu Val Asn Gln Phe Arg Glu His Lys Ile		
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Thr Lys Lys Met Ala Phe Ile Met Trp Phe Ser Gly Leu Arg Gly Ala		

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His Val Ile Ile Thr Thr Thr Leu Ile Ile Val Leu Cys Thr Thr Leu		
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Lys Lys Thr Arg Ser Ala Thr Arg Arg Thr Arg Arg Gln Gln Lys Ala		
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Leu Leu Ser Glu Leu Thr Thr Glu Glu Glu Arg Asp Val Thr Phe Thr		
530	535	540
Gln Val Arg Arg Gly Leu Glu Phe Ile Arg Leu Asp His Lys Tyr Leu		
545	550	555
Arg Pro Phe Phe Thr Arg Arg Phe Thr His Gln Glu Leu Lys Asp Cys		
565	570	575
Lys Ser Gln Met Thr Asp Leu Thr Asn Lys Trp Tyr Gln Thr Ile Arg		
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<210> 1869

<211> 2080

<212> DNA

<213> Ctenocephalides felis

<400> 1869

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<210> 1870

<211> 1824

<212> DNA

<213> Ctenocephalides felis

<400> 1870

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<210> 1871

<211> 1824

<212> DNA

<213> *Ctenocephalides felis*

<400> 1871

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<210> 1872

<211> 2383

<212> DNA

<213> *Ctenocephalides felis*

<220>

<221> CDS

<222> (60)..(845)

<400> 1872

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Met Ser Asp Glu Met Gln Glu Asn Gly Thr Ile Asn Gly Glu Val Pro
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gaa att gaa ctt atc att aag gca tcc acc ata gat ggt cga cgt aaa 155
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gga gct tgt tta ttt tgt caa gaa tat ttt atg gat ttg tac ctg cta 203
Gly Ala Cys Leu Phe Cys Gln Glu Tyr Phe Met Asp Leu Tyr Leu Leu
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gca gaa ctt aaa act atc agt tta aag gtt aca aca gta gac atg caa 251
Ala Glu Leu Lys Thr Ile Ser Leu Lys Val Thr Thr Val Asp Met Gln
  50           55           60

aaa cct cca ccg gat ttc cgt aca aat ttt gaa gcg acg ccg ccg cca 299
Lys Pro Pro Pro Asp Phe Arg Thr Asn Phe Glu Ala Thr Pro Pro Pro
  65           70           75           80

att cta atc gac aat ggc ctg gcc gtg cta gaa aac gac aaa atc gaa 347
Ile Leu Ile Asp Asn Gly Leu Ala Val Leu Glu Asn Asp Lys Ile Glu
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cgt cac atc atg aag agt gtc cct gga gga cac aat ctt ttt gtt cag 395

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cac ctg agg aaa atc aac gac cat ttg gcg cgg cgc ggc acg aga ttc 539
 His Leu Arg Lys Ile Asn Asp His Leu Ala Arg Arg Gly Thr Arg Phe
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 Leu Thr Gly Asp Thr Met Cys Cys Phe Asp Cys Glu Leu Met Pro Arg
 165 170 175

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ccg agc aat cta acc gcc tta tgg cgt tat atg tat cac atg tac cag 683
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 195 200 205

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cac tat aaa ctg caa cag cag agg atc agc aat aac cag atg atg aaa 779
 His Tyr Lys Leu Gln Gln Gln Arg Ile Ser Asn Asn Gln Met Met Lys
 225 230 235 240

atg aag aag cac gag gag cta gaa acg cca acg ttc acc aca tcg att 827
 Met Lys Lys His Glu Glu Leu Glu Thr Pro Thr Phe Thr Thr Ser Ile
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cca gtc gac gtt tca ggc tgataggaaa gaagtattta aaacaaaatt 875
 Pro Val Asp Val Ser Gly
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<210> 1873

<211> 262

<212> PRT

<213> Ctenocephalides felis

<400> 1873

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 35 40 45

Ala Glu Leu Lys Thr Ile Ser Leu Lys Val Thr Thr Val Asp Met Gln
 50 55 60

Lys Pro Pro Pro Asp Phe Arg Thr Asn Phe Glu Ala Thr Pro Pro Pro
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Ile Leu Ile Asp Asn Gly Leu Ala Val Leu Glu Asn Asp Lys Ile Glu
 85 90 95

Arg His Ile Met Lys Ser Val Pro Gly Gly His Asn Leu Phe Val Gln
 100 105 110

Asp Lys Glu Val Ala Thr Leu Ile Glu Asn Leu Tyr Ser Lys Leu Lys
 115 120 125

Leu Val Leu Val Lys Lys Asp Asp Val Lys Ser Asn Ser Leu Leu Ser
 130 135 140

His Leu Arg Lys Ile Asn Asp His Leu Ala Arg Arg Gly Thr Arg Phe
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Leu Thr Gly Asp Thr Met Cys Cys Phe Asp Cys Glu Leu Met Pro Arg
 165 170 175

Leu Gln His Ile Arg Val Ala Ala Lys Tyr Phe Val Glu Phe Glu Ile
 180 185 190

Pro Ser Asn Leu Thr Ala Leu Trp Arg Tyr Met Tyr His Met Tyr Gln
 195 200 205

Leu Asp Ala Phe Thr Gln Ser Cys Pro Ala Asp Gln Asp Ile Ile Asn
 210 215 220

His Tyr Lys Leu Gln Gln Gln Arg Ile Ser Asn Asn Gln Met Met Lys
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Met Lys Lys His Glu Glu Leu Glu Thr Pro Thr Phe Thr Thr Ser Ile
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Pro Val Asp Val Ser Gly
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<210> 1874

<211> 2383

<212> DNA

<213> Ctenocephalides felis

<400> 1874

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<210> 1875

<211> 786

<212> DNA

<213> *Ctenocephalides felis*

<400> 1875

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gatatcatca accactataa actgcaacag cagaggatca gcaataacca gatgatgaaa 720
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<210> 1876

<211> 786

<212> DNA

<213> *Ctenocephalides felis*

<400> 1876

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aaaatattct tgacaaaata aacaagctcc ttacgctga ccatctatgg tggatgcctt 720
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<210> 1877

<211> 457

<212> DNA

<213> Ctenocephalides felis

<400> 1877

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taataaaaata gtttattggc aatttnaaaa aaaaaaa 457

<210> 1878

<211> 1291

<212> DNA

<213> Ctenocephalides felis

<400> 1878

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<210> 1879

<211> 1291

<212> DNA

<213> Ctenocephalides felis

<400> 1879

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<210> 1880

<211> 279

<212> DNA

<213> Ctenocephalides felis

<400> 1880

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<210> 1881

<211> 279

<212> DNA

<213> Ctenocephalides felis

<400> 1881

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<210> 1882

<211> 1477

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (3)..(1361)

<400> 1882

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Ala Leu Gln Ser Ile Asp Asn Arg Gln Thr Asn Asn Cys Ser Glu Ile
20 25 30

ggg gtt gat ggt ttt ttt tgt ctc aac tgc agc gtc aca gct ttt tgt 143
Gly Val Asp Gly Phe Phe Cys Leu Asn Cys Ser Val Thr Ala Phe Cys
35 40 45

ggg aga gga cct acg ggt gaa ttc aac acc gtg tct aca agt cca tgt 191
Gly Arg Gly Pro Thr Gly Glu Phe Asn Thr Val Ser Thr Ser Pro Cys
50 55 60

agt tct ggt gaa gtt tgc agt acc tgg gcg ggt aga tgt tct gca gat 239
Ser Ser Gly Glu Val Cys Ser Thr Trp Ala Gly Arg Cys Ser Ala Asp
65 70 75

cca agc cca tgt ttc tcg gaa ggt tct ata act tgc acc ggt cca gga 287
Pro Ser Pro Cys Phe Ser Glu Gly Ser Ile Thr Cys Thr Gly Pro Gly
80 85 90 95

gtt ttt cct gat ccg tat gat tgt cag cgt tat cat gaa tgt aaa act 335

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Val Phe Pro Asp Pro Tyr Asp Cys Gln Arg Tyr His Glu Cys Lys Thr	
100 105 110	
gca aat gaa tca tct aag cct gtc gag tgt ggg ggt tac aag gct tat	383
Ala Asn Glu Ser Ser Lys Pro Val Glu Cys Gly Gly Tyr Lys Ala Tyr	
115 120 125	
aat gtt ata gaa aat aat tgt agc ctg aac atg aat cat caa tcg tgt	431
Asn Val Ile Glu Asn Asn Cys Ser Leu Asn Met Asn His Gln Ser Cys	
130 135 140	
aaa cgc tta caa ttt cat tgt gat act ata gga gat gaa aat gct tgg	479
Lys Arg Leu Gln Phe His Cys Asp Thr Ile Gly Asp Glu Asn Ala Trp	
145 150 155	
cgc agc aat aga aat ata tat tat agg tgc acc gaa aaa acc ttg tgg	527
Pro Ser Asn Arg Asn Ile Tyr Tyr Arg Cys Thr Glu Lys Thr Leu Trp	
160 165 170 175	
ttc aat agc aac aaa ata tta tat cct tta tta tat cgg tgt gat gag	575
Phe Asn Ser Asn Lys Ile Leu Tyr Pro Leu Leu Tyr Arg Cys Asp Glu	
180 185 190	
agt gag ata tat gat gca gtg cag aga gtt tgc gta aga gat gaa acc	623
Ser Glu Ile Tyr Asp Ala Val Gln Arg Val Cys Val Arg Asp Glu Thr	
195 200 205	
acc acg acg cct gcc aca acg cca acc gaa tct tcc acg tct agt gaa	671
Thr Thr Thr Pro Ala Thr Thr Pro Thr Glu Ser Ser Thr Ser Ser Glu	
210 215 220	
aca acc acg acg tct gcc aca aca tca acc gaa tct tcc acg tct agt	719
Thr Thr Thr Thr Ser Ala Thr Thr Ser Thr Glu Ser Ser Thr Ser Ser	
225 230 235	
gaa aca acc acg acg tct gcc aca aca cca acc gaa tct tcc acg tct	767
Glu Thr Thr Thr Thr Ser Ala Thr Thr Pro Thr Glu Ser Ser Thr Ser	
240 245 250 255	
agt gaa aca acc acg acg tct gcc aca aca cca acc gaa tct tcc acg	815
Ser Glu Thr Thr Thr Thr Ser Ala Thr Thr Pro Thr Glu Ser Ser Thr	
260 265 270	
tct agt gaa aca acc acg acg tct gcc aca aca cca acc gaa tct tcc	863
Ser Ser Glu Thr Thr Thr Thr Ser Ala Thr Thr Pro Thr Glu Ser Ser	
275 280 285	
acg tct agt gaa aca acc acg acg tct gcc aca aca cca acc gaa tct	911

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Thr Ser Ser Glu Thr Thr Thr Thr Ser Ala Thr Thr Pro Thr Glu Ser
      290                      295                      300

tcc acg tct ggt gaa aca acc acg acg tct gcc aca aca cca acc gaa 959
Ser Thr Ser Gly Glu Thr Thr Thr Thr Thr Ser Ala Thr Thr Pro Thr Glu
      305                      310                      315

cct tcc aca aag cct act tct acg gaa act ccc gca aca aaa cca ccg 1007
Pro Ser Thr Lys Pro Thr Ser Thr Glu Thr Pro Ala Thr Lys Pro Pro
      320                      325                      330                      335

caa gaa ata cca tgc aaa caa caa ggt ccg ctg atg caa gat cca cac 1055
Gln Glu Ile Pro Cys Lys Gln Gln Gly Pro Leu Met Gln Asp Pro His
      340                      345                      350

gat tgt cac gca tat tac aca tgt cta gaa att gga tca tta ccg aaa 1103
Asp Cys His Ala Tyr Tyr Thr Cys Leu Glu Ile Gly Ser Leu Pro Lys
      355                      360                      365

cat ttt aat tgt aat aaa ggt gct tat ttc aat aca gtc aaa tta aaa 1151
His Phe Asn Cys Asn Lys Gly Ala Tyr Phe Asn Thr Val Lys Leu Lys
      370                      375                      380

tgc gtg aaa gga aat tgc gaa aat agc aca gaa att cct ctt cct gag 1199
Cys Val Lys Gly Asn Cys Glu Asn Ser Thr Glu Ile Pro Leu Pro Glu
      385                      390                      395

ctt cca gac att tgc gat gaa gta gga cct ttg gtg caa gat cca aac 1247
Leu Pro Asp Ile Cys Asp Glu Val Gly Pro Leu Val Gln Asp Pro Asn
      400                      405                      410                      415

gat tgc cgc aag tat tat tca tgc gtc acg att gga aaa gaa cct gaa 1295
Asp Cys Arg Lys Tyr Tyr Ser Cys Val Thr Ile Gly Lys Glu Pro Glu
      420                      425                      430

cat ttt acg tgc aat aaa ggg gcg tat ttt gat cga gaa aga tta cgg 1343
His Phe Thr Cys Asn Lys Gly Ala Tyr Phe Asp Arg Glu Arg Leu Arg
      435                      440                      445

tgt gtc aga gga tct tgt taacaaatat tggtatataa caaagttcaa 1391
Cys Val Arg Gly Ser Cys
      450

tctttaatta ttatttagaa gaatttgaaa atgtatatatt aatgtttttt aataaaatag 1451

tttattggca atttnaaaaa aaaaaa 1477

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<210> 1883

<211> 453

<212> PRT

<213> Ctenocephalides felis

<400> 1883

Met Ile Lys Ser Val Ile Ile Val Ala Asn Phe Trp Leu Phe Val Ala
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Leu Gln Ser Ile Asp Asn Arg Gln Thr Asn Asn Cys Ser Glu Ile Gly
 20 25 30

Val Asp Gly Phe Phe Cys Leu Asn Cys Ser Val Thr Ala Phe Cys Gly
 35 40 45

Arg Gly Pro Thr Gly Glu Phe Asn Thr Val Ser Thr Ser Pro Cys Ser
 50 55 60

Ser Gly Glu Val Cys Ser Thr Trp Ala Gly Arg Cys Ser Ala Asp Pro
 65 70 75 80

Ser Pro Cys Phe Ser Glu Gly Ser Ile Thr Cys Thr Gly Pro Gly Val
 85 90 95

Phe Pro Asp Pro Tyr Asp Cys Gln Arg Tyr His Glu Cys Lys Thr Ala
 100 105 110

Asn Glu Ser Ser Lys Pro Val Glu Cys Gly Gly Tyr Lys Ala Tyr Asn
 115 120 125

Val Ile Glu Asn Asn Cys Ser Leu Asn Met Asn His Gln Ser Cys Lys
 130 135 140

Arg Leu Gln Phe His Cys Asp Thr Ile Gly Asp Glu Asn Ala Trp Pro
 145 150 155 160

Ser Asn Arg Asn Ile Tyr Tyr Arg Cys Thr Glu Lys Thr Leu Trp Phe
 165 170 175

Asn Ser Asn Lys Ile Leu Tyr Pro Leu Leu Tyr Arg Cys Asp Glu Ser
 180 185 190

Glu Ile Tyr Asp Ala Val Gln Arg Val Cys Val Arg Asp Glu Thr Thr
 195 200 205

Thr Thr Pro Ala Thr Thr Pro Thr Glu Ser Ser Thr Ser Ser Glu Thr
 210 215 220

Thr Thr Thr Ser Ala Thr Thr Ser Thr Glu Ser Ser Thr Ser Ser Glu
 225 230 235 240
 Thr Thr Thr Thr Ser Ala Thr Thr Pro Thr Glu Ser Ser Thr Ser Ser
 245 250 255
 Glu Thr Thr Thr Thr Ser Ala Thr Thr Pro Thr Glu Ser Ser Thr Ser
 260 265 270
 Ser Glu Thr Thr Thr Thr Ser Ala Thr Thr Pro Thr Glu Ser Ser Thr
 275 280 285
 Ser Ser Glu Thr Thr Thr Thr Ser Ala Thr Thr Pro Thr Glu Ser Ser
 290 295 300
 Thr Ser Gly Glu Thr Thr Thr Thr Ser Ala Thr Thr Pro Thr Glu Pro
 305 310 315 320
 Ser Thr Lys Pro Thr Ser Thr Glu Thr Pro Ala Thr Lys Pro Pro Gln
 325 330 335
 Glu Ile Pro Cys Lys Gln Gln Gly Pro Leu Met Gln Asp Pro His Asp
 340 345 350
 Cys His Ala Tyr Tyr Thr Cys Leu Glu Ile Gly Ser Leu Pro Lys His
 355 360 365
 Phe Asn Cys Asn Lys Gly Ala Tyr Phe Asn Thr Val Lys Leu Lys Cys
 370 375 380
 Val Lys Gly Asn Cys Glu Asn Ser Thr Glu Ile Pro Leu Pro Glu Leu
 385 390 395 400
 Pro Asp Ile Cys Asp Glu Val Gly Pro Leu Val Gln Asp Pro Asn Asp
 405 410 415
 Cys Arg Lys Tyr Tyr Ser Cys Val Thr Ile Gly Lys Glu Pro Glu His
 420 425 430
 Phe Thr Cys Asn Lys Gly Ala Tyr Phe Asp Arg Glu Arg Leu Arg Cys
 435 440 445
 Val Arg Gly Ser Cys
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<210> 1884

<211> 1477

<212> DNA

<213> *Ctenocephalides felis*

<400> 1884

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gacctctga cacaccgtaa tctttctcga tcaaaatacg cccctttatt gcacgtaaaa 180
tggtcaggtt cttttccaat cgtgacgcat gaataatact tgcggcaatc gtttgatct 240
tgcaccaaag gtcctacttc atcgcaaagc tctggaagct caggaagagg aatttctgtg 300
ctattttcgc aatttccttt cacgcatttt aatttgactg tattgaaata agcaccttta 360
ttacaattaa aatgtttcgg taatgatcca atttctagac atgtgtaata tgcgtgacaa 420
tcgtgtggat cttgcatcag cggaccttgt tgtttgcatg gtatttcttg cggtggtttt 480
gttgcgaggag tttccgtaga agtaggcttt gtggaagggt cggttggtgt tgtggcagac 540
gtcgtggttg tttcaccaga cgtggaagat tgcgttggtg ttgtggcaga cgtcgtggtt 600
gtttcactag acgtggaaga ttcggttggt gttgtggcag acgtcgtggt tgtttcacta 660
gacgtggaag attcgttggtg tgtgtggca gacgtcgtg ttgtttcact agacgtggaa 720
gattcgttggt gtgttggtgc agacgtcgtg gttgtttcac tagacgtgga agattcgtgt 780
gatgttggtg cagacgtcgt ggtgttttca ctacacgtg aagattcgtt tggcgttggt 840
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gtaggtctc taccacaaaa agctgtgacg ctgcagttga gacaaaaaaa accatcaaca 1380
ccaatctcag agcagttgtt agtctgccga ttatcaatcg attgcaaggc tacgaatagc 1440
caaaagttgg ccacaattat aactgacttg atcattg 1477

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<210> 1885

<211> 1359

<212> DNA

<213> *Ctenocephalides felis*

<400> 1885

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tgcagcgtca cagctttttg tggtagagga cctacgggtg aattcaacac cgtgtctaca 180
agtccatgta gttctggtga agtttgagc acctgggctg gtagatgttc tgcagatcca 240
agcccatggt tctcggaagg ttctataact tgcaccggtc caggagtttt tcctgatccg 300
tatgattgtc agcgttatca tgaatgtaaa actgcaaagc aatcatctaa gcctgtcgag 360
tgtgggggtt acaaggctta taatgttata gaaaataatt gtagcctgaa catgaatcat 420
caatcgtgta aacgcttaca atttcattgt gatactatag gagatgaaaa tgcttggtccg 480
agcaatagaa atatatatta taggtgcacc gaaaaaacct tgtggttcaa tagcaacaaa 540
atattatc ctttattata tcggtgtgat gagagtgaga tatatgatgc agtgcagaga 600

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gtttgcgtaa gagatgaaac caccacgacg cctgccacaa cgccaaccga atcttccacg 660
tctagtga aaaccacgac gtctgccaca acatcaaccg aatcttccac gtctagtga 720
acaaccacga cgtctgccac aacaccaacc gaatcttcca cgtctagtga aacaaccacg 780
acgtctgcca caacaccaac cgaatcttcc acgtctagtg aaacaaccac gacgtctgcc 840
acaacaccaa ccgaatcttc cacgtctagt gaaacaacca cgacgtctgc cacaacacca 900
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ccagacattt gcgatgaagt aggacctttg gtgcaagatc caaacgattg ccgcaagtat 1260
tattcatgcg tcacgattgg aaaagaacct gaacatttta cgtgcaataa aggggcgtat 1320
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<210> 1886

<211> 1359

<212> DNA

<213> *Ctenocephalides felis*

<400> 1886

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atcttgacac aaaggctcta cttcatcgca aatgtctgga agctcaggaa gaggaatttc 180
tgtgctattt tcgcaatttc ctttcacgca ttttaatttg actgtattga aataagcacc 240
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ggaagattcg gttggtgttg tggcagacgt cgtggtgtt tctactagac tggaagattc 660
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tgtggcaggc gtcgtggttg tttcatctct tacgcaaact ctctgcactg catcatatat 780
ctcactctca tcacaccgat ataataaagg atataatatt ttgttgctat tgaaccacaa 840
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tatagtatca caatgaaatt gtaagcgttt acacgattga tgattcatgt tcaggctaca 960
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accggtgcaa gttatagaac cttccgagaa acatgggctt ggatctgcag aacatctacc 1140
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<210> 1887

<211> 406

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (20)..(262)

<400> 1887

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gttaatttaa aataacaaa atg aaa gga aca tta tta ata tta tca tgt ctt 52
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        1             5             10

gtg atc atg ata agt gcc gaa tat gct gac gta gat gtg tgc caa gat 100
Val Ile Met Ile Ser Ala Glu Tyr Ala Asp Val Asp Val Cys Gln Asp
      15             20             25

ttg gac gat gga act ttt ctt gct gat tca aac aat tgc caa aat ttc 148
Leu Asp Asp Gly Thr Phe Leu Ala Asp Ser Asn Asn Cys Gln Asn Phe
      30             35             40

ttc att tgt gat gga ggc cga gct tgg aaa atg tat tgt cca gga tca 196
Phe Ile Cys Asp Gly Gly Arg Ala Trp Lys Met Tyr Cys Pro Gly Ser
      45             50             55

ctt tta tgg aat gat cac gaa gga aca tgt gat tac gca caa aat gta 244
Leu Leu Trp Asn Asp His Glu Gly Thr Cys Asp Tyr Ala Gln Asn Val
      60             65             70             75

gaa tgt tac caa cca gaa taaaacattt taatatctga cagcgatttt 292
Glu Cys Tyr Gln Pro Glu
      80

ctgaaactat atttcatact actgttataa taaatttatc ttcattgctc tctcctata 352

aatttattcc gttttaataa aatcaatata aagacaaaaa aaaaaaaaaa aaaa 406

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<210> 1888

<211> 81

<212> PRT

<213> Ctenocephalides felis

<400> 1888

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Met Lys Gly Thr Leu Leu Ile Leu Ser Cys Leu Val Ile Met Ile Ser
  1             5             10             15

Ala Glu Tyr Ala Asp Val Asp Val Cys Gln Asp Leu Asp Asp Gly Thr
      20             25             30

```

Phe Leu Ala Asp Ser Asn Asn Cys Gln Asn Phe Phe Ile Cys Asp Gly
 35 40 45
 Gly Arg Ala Trp Lys Met Tyr Cys Pro Gly Ser Leu Leu Trp Asn Asp
 50 55 60
 His Glu Gly Thr Cys Asp Tyr Ala Gln Asn Val Glu Cys Tyr Gln Pro
 65 70 75 80
 Glu

<210> 1889

<211> 406

<212> DNA

<213> Ctenocephalides felis

<400> 1889

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 aggagagcaa tgaagataaa tttattataa cagtagtatg aaatatagtt tcagaaaatc 120
 gctgtcagat attaaaatgt tttattctgg ttggtaacat tctacatttt gtgcgtaatc 180
 acatgttctt tcgtgatcat tccataaaag tgatcctgga caatacattt tccaagctcg 240
 gcctccatca caaatgaaga aattttggca attgtttgaa tcagcaagaa aagttccatc 300
 gtccaaatct tggcacacat ctacgtcagc atattcggca cttatcatga tcacaagaca 360
 tgataatatt aataatgttc ctttcatttt gttattttaa attaac 406

<210> 1890

<211> 243

<212> DNA

<213> Ctenocephalides felis

<400> 1890

atgaaaggaa cattattaat attatcatgt cttgtgatca tgataagtgc cgaatatgct 60
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 caaaatttct tcatttgtga tggaggccga gcttggaaaa tgtattgtcc aggatcactt 180
 ttatggaatg atcacgaagg aacatgtgat tacgcacaaa atgtagaatg ttaccaacca 240
 gaa 243

<210> 1891

<211> 243

<212> DNA

<213> Ctenocephalides felis

<400> 1891

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ttctggttgg taacattcta ctttttgtgc gtaatcacat gttccttcgt gatcattcca 60
taaaagtgat cctggacaat acattttcca agtcggcct ccatcacaâa tgaagaaatt 120
ttggcaattg tttgaatcag caagaaaagt tccatcgtcc aaatcttggc acacatctac 180
gtcagcatat tcggcactta tcatgatcac aagacatgat aatattaata atgttccttt 240
cat 243

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<210> 1892

<211> 974

<212> DNA

<213> *Ctenocephalides felis*

<400> 1892

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ttaatgtcga cggaacgcct ttaacagtaa ataaagaagt atttgcacatca ttggatgagc 60
ccgcaccagg agtagtacct actcctgaac ctacacctgt accgaaaccc gagcaaaaat 120
gtaaaaaagt aaaatttagt tgcgtgaatt cgtgcagttc acccgaaatg cagtattgtc 180
cggaatatag agcagatccg gtaaggaat cctgtagccc agatcaagtg tgcgctgac 240
aaagtggata tctacagtgc accactaaag aaagtacagt ctgcaaagta caaggtttca 300
aatgtccgtc accatcgaga ttttatccaa atataaatga ttgtcaaagc tattattatt 360
gtgacgaaaa tagtatagga acccaatatt attgccccgc aaattttgca tatgatccgt 420
tacgtcataa ttgcgacct atggctctgg gcacaaaatg ctatacagtt acatgtcctg 480
cacagcctaa ggtgcttccg tacattggtg ataaatcatt gtacgtcgta tgtatggccg 540
gaagaggaac cgtattgcaa tgcgaagaac ccgccgagtt ttccccaagg agcgaaacct 600
gtgtcgggca atgccgagca cgtggaaaat ttgctttcaa gaacgacgca acatgccgga 660
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cagtatttaa ccaagctact caaagctgca acacaggaac ttgcgagagg aaacctaatt 780
tatattaata tattgatgaa gtattcaaca aaagaaacta tacaaaatat gtactttgtt 840
ttactttatg tgttatataa aaaaatatta tggttgaaca caggctcgca aatatgataa 900
ggcatttaag aattttaciaa tttagatttt tttaaatcca tgaatatatt tgttctaate 960
aaaaaaaaaa aaaa 974

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<210> 1893

<211> 974

<212> DNA

<213> *Ctenocephalides felis*

<400> 1893

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gtaaaaaagt aaaatttagt tgcgtgaatt cgtgcagttc acccgaaatg cagtattgtc 180
cggaatatag agcagatccg gtaaggaat cctgtagccc agatcaagtg tgcgctgac 240
aaagtggata tctacagtgc accactaaag aaagtacagt ctgcaaagta caaggtttca 300
aatgtccgtc accatcgaga ttttatccaa atataaatga ttgtcaaagc tattattatt 360
gtgacgaaaa tagtatagga acccaatatt attgccccgc aaattttgca tatgatccgt 420
tacgtcataa ttgcgacct atggctctgg gcacaaaatg ctatacagtt acatgtcctg 480
cacagcctaa ggtgcttccg tacattggtg ataaatcatt gtacgtcgta tgtatggccg 540

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gaagaggaac cgtattgcaa tgcgaagaac ccgccgagtt tcccccaagg agcgaaacct 600
gtgtcgggca atgccgagca cgtggaaaat ttgctttcaa gaacgacgca acatgccgga 660
agttcttcac gtgtttacgt cctaaaggag agccagttcc tgatcaatgt ccgattggaa 720
cagtatttaa ccaagctact caaagctgca acacaggaac ttgcgagagg aaacctaata 780
tatattaata tattgatgaa gtattcaaca aaagaaacta tacaaaatat gtactttgtt 840
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aaaaaaaaaa aaaa

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<210> 1894

<211> 1043

<212> DNA

<213> *Ctenocephalides felis*

<400> 1894

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tggtgagacc cgcaccagga gtagtaccta ctctgaacc tacacctgta ccgaaacccg 180
agcaaaaatg taaaaaagta aaatttagtt gcgtgaattc gtgcagttca cccgaaatgc 240
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gcgctgatca aagtggatat ctacagtgca ccactaaaga agtacagtc tgcaaagtac 360
aaggtttcaa atgtccgtca ccatcgagat tttatccaaa tataaatgat tgtcaaagct 420
attattattg tgacgaaaat agtataggaa cccaatatta ttgccccgca aattttgcat 480
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catgccggaa gttcttcacg gtgtttacgtc ctaaaggaga gccagttcct gatcaatgtc 780
cgattggaac agtatttaac caagctactc aaagctgcaa cacaggaact tgcgagagga 840
aacctaataa atattaatat attgatgaag tattcaacaa aagaaactat acaaaaatag 900
tactttgttt tactttatgt gttatataaa aaaatattat gggttgaacac aggctcgcaa 960
atatgataag gcatttaaga attttacaat ttagattttt tttaaattccat gaatatattt 1020
gttctaataa aaaaaaaaaa aaa

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<210> 1895

<211> 1043

<212> DNA

<213> *Ctenocephalides felis*

<400> 1895

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tttttttttt ttttgattag aacaaatata ttcattgatt taaaaaaatc taaattgtaa 60
aattcttaaa tgccttatca tatttgcgag cctgtgttca accataatat ttttttatat 120
aacacataaa gtaaaacaaa gtacatattt tgtatagttt cttttgttga atacttcata 180
aatatattaa tataatttag gtttcctctc gcaagttcct gtgttgacgc tttgagtagc 240
ttggttaaat actgttccaa tcggacattg atcaggaact ggctctcctt taggacgtaa 300
acacgtgaag aacttccggc atgttgcgtc gttcttgaaa gcaaattttc cacgtgctcg 360

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gcattgcccc acacagggtt cgctccttgg ggaaaactcg gcgggttctt cgcattgcaa 420
tacggttcct ctcccgcca tacatacgac gtacaatgat ttatcaccaa tgtacggaag 480
caccttaggc tgtgcaggac atgtaactgt atagcatttt gtgccagag ccatagggtcc 540
gcaattatga cgtaacggat catatgcaaa atttgcgggg caataatatt gggttcctat 600
actattttcg tcacaataat aatagctttg acaatcattt atatttggat aaaatctcga 660
tggtgacgga catttgaaac cttgtacttt gcagactgta ctttcttttag tggtgcactg 720
tagatatcca ctttgatcag cgcacacttg atctgggcta caggattcct taaccggatc 780
tgctcctatt tccggacaat actgcatttc ggggtgaactg cacgaattca cgcaactaaa 840
ttttactttt ttacattttt gctcgggttt cgggtacaggt gtaggttcag gagtaggtac 900
tactcctggg gcgggctcat ccaatgatgc aaatacttct ttatttactg ttaaaggcgt 960
tccgtcgaca ttaaaactcac catcataagc ggtaacgaca gataacgcca caaaactaat 1020
aaaaaccaat gtgatataaa aca 1043

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<210> 1896

<211> 1062

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (19)..(873)

<400> 1896

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gtaacatatt tattaaga atg ttt tat atc aca ttg gtt ttt att agt ttt 51
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gtg gcg tta tct gtc gtt acc gct tat gat ggt gag ttt aat gtc gac 99
Val Ala Leu Ser Val Val Thr Ala Tyr Asp Gly Glu Phe Asn Val Asp
              15             20             25

gga acg cct tta aca gta aat aaa gaa gta ttt gca tca ttg gat gag 147
Gly Thr Pro Leu Thr Val Asn Lys Glu Val Phe Ala Ser Leu Asp Glu
              30             35             40

ccc gca cca gga gta gta cct act cct gaa cct aca cct gta ccg aaa 195
Pro Ala Pro Gly Val Val Pro Thr Pro Glu Pro Thr Pro Val Pro Lys
              45             50             55

ccc gag caa aaa tgt aaa aaa gta aaa ttt agt tgc gtg aat tcg tgc 243
Pro Glu Gln Lys Cys Lys Lys Val Lys Phe Ser Cys Val Asn Ser Cys
              60             65             70             75

agt tca ccc gaa atg cag tat tgt ccg gaa ata gga gca gat ccg gtt 291
Ser Ser Pro Glu Met Gln Tyr Cys Pro Glu Ile Gly Ala Asp Pro Val
              80             85             90

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aag gaa tcc tgt agc cca gat caa gtg tgc gct gat caa agt gga tat	339
Lys Glu Ser Cys Ser Pro Asp Gln Val Cys Ala Asp Gln Ser Gly Tyr	
95 100 105	
cta cag tgc acc act aaa gaa agt aca gtc tgc aaa gta caa ggt ttc	387
Leu Gln Cys Thr Thr Lys Glu Ser Thr Val Cys Lys Val Gln Gly Phe	
110 115 120	
aaa tgt ccg tca cca tcg aga ttt tat cca aat ata aat gat tgt caa	435
Lys Cys Pro Ser Pro Ser Arg Phe Tyr Pro Asn Ile Asn Asp Cys Gln	
125 130 135	
agc tat tat tat tgt gac gaa aat agt ata gga acc caa tat tat tgc	483
Ser Tyr Tyr Tyr Cys Asp Glu Asn Ser Ile Gly Thr Gln Tyr Tyr Cys	
140 145 150 155	
ccc gca aat ttt gca tat gat ccg tta cgt cat aat tgc gga cct atg	531
Pro Ala Asn Phe Ala Tyr Asp Pro Leu Arg His Asn Cys Gly Pro Met	
160 165 170	
gct ctg ggc aca aaa tgc tat aca gtt aca tgt cct gca cag cct aag	579
Ala Leu Gly Thr Lys Cys Tyr Thr Val Thr Cys Pro Ala Gln Pro Lys	
175 180 185	
gtg ctt ccg tac att ggt gat aaa tca ttg tac gtc gta tgt atg gcc	627
Val Leu Pro Tyr Ile Gly Asp Lys Ser Leu Tyr Val Val Cys Met Ala	
190 195 200	
gga aga gga acc gta ttg caa tgc gaa gaa ccc gcc gag ttt tcc cca	675
Gly Arg Gly Thr Val Leu Gln Cys Glu Glu Pro Ala Glu Phe Ser Pro	
205 210 215	
agg agc gaa acc tgt gtc ggg caa tgc cga gca cgt gga aaa ttt gct	723
Arg Ser Glu Thr Cys Val Gly Gln Cys Arg Ala Arg Gly Lys Phe Ala	
220 225 230 235	
ttc aag aac gac gca aca tgc cgg aag ttc ttc acg tgt tta cgt cct	771
Phe Lys Asn Asp Ala Thr Cys Arg Lys Phe Phe Thr Cys Leu Arg Pro	
240 245 250	
aaa gga gag cca gtt cct gat caa tgt ccg att gga aca gta ttt aac	819
Lys Gly Glu Pro Val Pro Asp Gln Cys Pro Ile Gly Thr Val Phe Asn	
255 260 265	
caa gct act caa agc tgc aac aca gga act tgc gag agg aaa cct aaa	867
Gln Ala Thr Gln Ser Cys Asn Thr Gly Thr Cys Glu Arg Lys Pro Lys	
270 275 280	

tta tat taatatattg atgaagtatt caacaaaaga aactatacaa aatatgtact 923
 Leu Tyr
 285

ttgttttact ttatgtgtta tataaaaaaa tattatgggtt gaacacaggc tcgcaaatat 983
 gataaggcat ttaagaattt tacaatttag atttttttaa atccatgaat atattgttc 1043
 taatcaaaaa aaaaaaaaaa 1062

<210> 1897

<211> 285

<212> PRT

<213> Ctenocephalides felis

<400> 1897

Met Phe Tyr Ile Thr Leu Val Phe Ile Ser Phe Val Ala Leu Ser Val
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Val Thr Ala Tyr Asp Gly Glu Phe Asn Val Asp Gly Thr Pro Leu Thr
 20 25 30

Val Asn Lys Glu Val Phe Ala Ser Leu Asp Glu Pro Ala Pro Gly Val
 35 40 45

Val Pro Thr Pro Glu Pro Thr Pro Val Pro Lys Pro Glu Gln Lys Cys
 50 55 60

Lys Lys Val Lys Phe Ser Cys Val Asn Ser Cys Ser Ser Pro Glu Met
 65 70 75 80

Gln Tyr Cys Pro Glu Ile Gly Ala Asp Pro Val Lys Glu Ser Cys Ser
 85 90 95

Pro Asp Gln Val Cys Ala Asp Gln Ser Gly Tyr Leu Gln Cys Thr Thr
 100 105 110

Lys Glu Ser Thr Val Cys Lys Val Gln Gly Phe Lys Cys Pro Ser Pro
 115 120 125

Ser Arg Phe Tyr Pro Asn Ile Asn Asp Cys Gln Ser Tyr Tyr Tyr Cys
 130 135 140

Asp Glu Asn Ser Ile Gly Thr Gln Tyr Tyr Cys Pro Ala Asn Phe Ala
 145 150 155 160

Tyr Asp Pro Leu Arg His Asn Cys Gly Pro Met Ala Leu Gly Thr Lys

	165		170		175
Cys Tyr Thr Val Thr Cys Pro Ala Gln Pro Lys Val Leu Pro Tyr Ile					
	180		185		190
Gly Asp Lys Ser Leu Tyr Val Val Cys Met Ala Gly Arg Gly Thr Val					
	195		200		205
Leu Gln Cys Glu Glu Pro Ala Glu Phe Ser Pro Arg Ser Glu Thr Cys					
	210		215		220
Val Gly Gln Cys Arg Ala Arg Gly Lys Phe Ala Phe Lys Asn Asp Ala					
	225		230		235
Thr Cys Arg Lys Phe Phe Thr Cys Leu Arg Pro Lys Gly Glu Pro Val					
	245		250		255
Pro Asp Gln Cys Pro Ile Gly Thr Val Phe Asn Gln Ala Thr Gln Ser					
	260		265		270
Cys Asn Thr Gly Thr Cys Glu Arg Lys Pro Lys Leu Tyr					
	275		280		285

<210> 1898

<211> 1062

<212> DNA

<213> Ctenocephalides felis

<400> 1898

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gtaacatatt tattaagaat gttttatatt acattgggtt ttattagttt tgtggcggtta 60
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aaagaagtat ttgcatcatt ggatgagccc gcaccaggag tagtacctac tcctgaacct 180
acacctgtac cgaaaccgga gcaaaaatgt aaaaaagtaa aatttagttg cgtgaattcg 240
tgcagttcac ccgaaatgca gtattgtccg gaaataggag cagatccggt taaggaatcc 300
tgtagccag atcaagtgtg cgctgatcaa agtggatatt tacagtgcac cactaaagaa 360
agtacagtct gcaaagtaca aggtttcaaa tgcctgtcac catcgagatt ttatccaaat 420
ataaatgatt gtcaaagcta ttattattgt gacgaaaata gtataggaac ccaatattat 480
tgccccgcaa attttgcata tgatccgtta cgtcataatt gcggacctat ggctctgggc 540
acaaaatgct atacagttac atgtcctgca cagcctaagg tgcttccgta cattgggtgat 600
aaatcattgt acgtcgtatg tatggcggga agaggaaccg tattgcaatg cgaagaacct 660
gccgagtttt cccaaggag cgaaacctgt gtcgggcaat gccgagcacg tggaaaattt 720
gctttcaaga acgacgcaac atgccggaag ttcttcacgt gtttacgtcc taaaggagag 780
ccagttcctg atcaatgtcc gattggaaca gtatttaacc aagctactca aagctgcaac 840
acaggaactt gcgagaggaa acctaaatta tattaatata ttgatgaagt attcaacaaa 900
agaaactata caaaatatgt actttgtttt actttatgtg ttatataaaa aaatattatg 960
gttgaacaca ggctcgcaaa tatgataagg catttaagaa ttttacaatt tagatttttt 1020

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taaatccatg aatatatttg ttctaataca aaaaaaaaaa aa

1062

<210> 1899

<211> 855

<212> DNA

<213> Ctenocephalides felis

<400> 1899

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gatggtgagt ttaatgtcga cggaacgcct ttaacagtaa ataaagaagt atttgcacatca 120
ttggatgagc ccgcaccagg agtagtacct actcctgaac ctacacctgt accgaaaccc 180
gagcaaaaat gtaaaaaagt aaaatttagt tgcgtgaatt cgtgcagttc acccgaaatg 240
cagtattgtc cggaaatagg agcagatccg gttaaggaat cctgtagccc agatcaagtg 300
tgcgctgata aaagtggata tctacagtgc accactaaag aaagtacagt ctgcaaagta 360
caagggtttca aatgtccggt accatcgaga ttttatccaa atataaatga ttgtcaaagc 420
tattattatt gtgacgaaaa tagtatagga acccaatatt attgccccgc aaattttgca 480
tatgatccgt tacgtcataa ttgcggacct atggctctgg gcacaaaatg ctatacagtt 540
acatgtcctg cacagcctaa ggtgcttccg tacattggtg ataaatcatt gtacgtcgta 600
tgtatggccg gaagaggaac cgtattgcaa tgcgaagaac ccgccgagtt ttccccaagg 660
agcgaaacct gtgtcgggca atgccgagca cgtggaaaat ttgctttcaa gaacgacgca 720
acatgccgga agttcttcac gtgtttacgt cctaaaggag agccagttcc tgatcaatgt 780
ccgattggaa cagtatttaa ccaagctact caaagctgca acacaggaac ttgcgagagg 840
aaacctaaat tatat 855

<210> 1900

<211> 855

<212> DNA

<213> Ctenocephalides felis

<400> 1900

atataattta gggttctctc cgcaagttcc tgtgttgag ctttgagtag cttgggttaa 60
tactgttcca atcggacatt gatcaggaac tggctctcct ttaggacgta aacacgtgaa 120
gaacttccgg catgttgctg cgttcttgaa agcaaatttt ccacgtgctc ggcattgccc 180
gacacagggt tcgctccttg gggaaaactc ggcgggttct tcgcatgca atacggttcc 240
tcttccggcc atacatacga cgtacaatga tttatcacca atgtacggaa gcaccttagg 300
ctgtgcagga catgtaactg tatagcattt tgtgccaga gccataggtc cgcaattatg 360
acgtaacgga tcatatgcaa aatttgctgg gcaataatat tgggttccta tactattttc 420
gtcacaataa taatagcttt gacaatcatt tatatttgga taaaatctcg atggtgacgg 480
acatttgaaa ccttgacttt tgcaactgt actttcttta gtggtgcact gtagatatcc 540
actttgatca gcgcacactt gatctgggct acaggattcc ttaaccggat ctgctcctat 600
ttccggacaa tactgcattt cgggtgaact gcacgaattc acgcaactaa attttacttt 660
tttacatttt tgctcgggtt tcggtacagg ttaggttcca ggagtaggta ctactcctgg 720
tgcgggctca tccaatgatg caaatacttc tttatttact gttaaaggcg ttccgtcgac 780
attaaactca ccatcataag cggtaacgac agataacgcc aaaaaactaa taaaaaccaa 840
tgtgatataa aacat 855

<210> 1901

<211> 1875

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (44)..(1633)

<400> 1901

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                                     1

acg ggg att caa ata ata gct tcc aaa gaa cca aaa cca agg cag ttt 103
Thr Gly Ile Gln Ile Ile Ala Ser Lys Glu Pro Lys Pro Arg Gln Phe
   5              10              15              20

gaa gat gcg ttg gca ctc aca ggt ttt gga aaa ttc aat tac ctt ctt 151
Glu Asp Ala Leu Ala Leu Thr Gly Phe Gly Lys Phe Asn Tyr Leu Leu
              25              30              35

ctg gtc gtg agt gga tgc gta tta gta tgt gtt ttg atg gaa act ctt 199
Leu Val Val Ser Gly Cys Val Leu Val Cys Val Leu Met Glu Thr Leu
              40              45              50

gga atg agt ttt gtc gtt cct tca gca caa tgt gat ctg gaa tta aca 247
Gly Met Ser Phe Val Val Pro Ser Ala Gln Cys Asp Leu Glu Leu Thr
              55              60              65

aca aaa caa aaa gga ata tta agc gct ata gct ttt ata ggt att ata 295
Thr Lys Gln Lys Gly Ile Leu Ser Ala Ile Ala Phe Ile Gly Ile Ile
              70              75              80

agc agt tca cat tta tgg gga ttt tta gcc gat acg aga ggg agg cgg 343
Ser Ser Ser His Leu Trp Gly Phe Leu Ala Asp Thr Arg Gly Arg Arg
   85              90              95              100

aaa gtg att atg cct aca ctt ctt ctt gca ttt ttt tgt acc ttg gca 391
Lys Val Ile Met Pro Thr Leu Leu Leu Ala Phe Phe Cys Thr Leu Ala
              105              110              115

tct agt ttt gta aat tca gtt tgg ctg ttt att ttg ctg cga tat ttc 439
Ser Ser Phe Val Asn Ser Val Trp Leu Phe Ile Leu Leu Arg Tyr Phe
              120              125              130

aat gga ttt ttc gta tct gga gga agt gca aca ata tat gca tat tta 487

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Asn Gly Phe Phe Val Ser Gly Gly Ser Ala Thr Ile Tyr Ala Tyr Leu
 135 140 145

gga gaa ttt cat aat cct agg cat cgc agc agg gct att atg gga gcg 535
 Gly Glu Phe His Asn Pro Arg His Arg Ser Arg Ala Ile Met Gly Ala
 150 155 160

tca agc atc ttc gga ttt gcg tgt ctt gca tta ccg acg gtt gca tgg 583
 Ser Ser Ile Phe Gly Phe Ala Cys Leu Ala Leu Pro Thr Val Ala Trp
 165 170 175 180

tta att ata aat cag aaa tgg tca ttc tat att gac ttt ttg gga tat 631
 Leu Ile Ile Asn Gln Lys Trp Ser Phe Tyr Ile Asp Phe Leu Gly Tyr
 185 190 195

aca tac aag ccc tgg agg ttg tat atg gtt gca tgt ggt ttg cca tca 679
 Thr Tyr Lys Pro Trp Arg Leu Tyr Met Val Ala Cys Gly Leu Pro Ser
 200 205 210

ctg ctt tgt tgt ttt gct ttg tgg aaa tta cca gaa agt ccc aaa ttt 727
 Leu Leu Cys Cys Phe Ala Leu Trp Lys Leu Pro Glu Ser Pro Lys Phe
 215 220 225

ttg atg aat cag gga aga aac gaa gaa gct cgt caa att att gcc aaa 775
 Leu Met Asn Gln Gly Arg Asn Glu Glu Ala Arg Gln Ile Ile Ala Lys
 230 235 240

atg tat aga att aat act ggt aaa cca gaa agt gaa ttc ccc gta tca 823
 Met Tyr Arg Ile Asn Thr Gly Lys Pro Glu Ser Glu Phe Pro Val Ser
 245 250 255 260

tca atc tta gat gaa tat cca gga gtg gat ggt gaa aat aca aat aaa 871
 Ser Ile Leu Asp Glu Tyr Pro Gly Val Asp Gly Glu Asn Thr Asn Lys
 265 270 275

aca aag aaa tca ttt tta aga act gta tgg gat caa act gct ccg ctg 919
 Thr Lys Lys Ser Phe Leu Arg Thr Val Trp Asp Gln Thr Ala Pro Leu
 280 285 290

ttt atg ggt gag cac atg aaa aaa aca ctc att gca tgt act ctg caa 967
 Phe Met Gly Glu His Met Lys Lys Thr Leu Ile Ala Cys Thr Leu Gln
 295 300 305

ttc gga ata ttt gcc aca tct aac ggc atg tac atg tgg ttt ccc gat 1015
 Phe Gly Ile Phe Ala Thr Ser Asn Gly Met Tyr Met Trp Phe Pro Asp
 310 315 320

atc ata agt aaa atg aca gaa ttt caa aac gct cat cca gga gta cca 1063

Ile Ile Ser Lys Met Thr Glu Phe Gln Asn Ala His Pro Gly Val Pro
 325 330 335 340

 agt aca ata tgc tac gtt gtc caa aat tca tca atg ctt agg gcg gac 1111
 Ser Thr Ile Cys Tyr Val Val Gln Asn Ser Ser Met Leu Arg Ala Asp
 345 350 355

 gac ttc att gat act acg aat agt acg acc gag tgt aaa gac aca atg 1159
 Asp Phe Ile Asp Thr Thr Asn Ser Thr Thr Glu Cys Lys Asp Thr Met
 360 365 370

 gaa gaa cag gca ttt atg cat tct tta atg ttg gaa gct gga tat gcg 1207
 Glu Glu Gln Ala Phe Met His Ser Leu Met Leu Glu Ala Gly Tyr Ala
 375 380 385

 att gga ttt ccc ata ata ggt gct att att aac tct gtg gga aag ctt 1255
 Ile Gly Phe Pro Ile Ile Gly Ala Ile Ile Asn Ser Val Gly Lys Leu
 390 395 400

 cca att ctt gta ttc gtg atg gtc tca tgc ggg att tgt gga ata att 1303
 Pro Ile Leu Val Phe Val Met Val Ser Cys Gly Ile Cys Gly Ile Ile
 405 410 415 420

 tgt gca ttt att gaa cat tta aca ata gca tca tat tta tat ttg tgg 1351
 Cys Ala Phe Ile Glu His Leu Thr Ile Ala Ser Tyr Leu Tyr Leu Trp
 425 430 435

 ttg ctg gtt tgc gga att gct gtg aca gtg gta aac gcg gca tta gta 1399
 Leu Leu Val Cys Gly Ile Ala Val Thr Val Val Asn Ala Ala Leu Val
 440 445 450

 gat ctg tac cct aca caa ctc agg gca atg gca gta tgt ata tct tta 1447
 Asp Leu Tyr Pro Thr Gln Leu Arg Ala Met Ala Val Cys Ile Ser Leu
 455 460 465

 atg atg ggt cga tta gga agt gtt gtt gga agc aat gtt gta gga ata 1495
 Met Met Gly Arg Leu Gly Ser Val Val Gly Ser Asn Val Val Gly Ile
 470 475 480

 att cta gat tat aat tgc gat tta aca ttt tta ata tca gga aca tct 1543
 Ile Leu Asp Tyr Asn Cys Asp Leu Thr Phe Leu Ile Ser Gly Thr Ser
 485 490 495 500

 ctg ata gca tgt gga gtg att gca ttc ttt ata ccg aac att tat cag 1591
 Leu Ile Ala Cys Gly Val Ile Ala Phe Phe Ile Pro Asn Ile Tyr Gln
 505 510 515

 aag caa gtg gat aga aga acg agc att gct tca tat gga cca 1633

Lys Gln Val Asp Arg Arg Thr Ser Ile Ala Ser Tyr Gly Pro
 520 525 530

taaccatatt tccgtcgtgt gttgtgaaat gcaattatac tttgagaaag tattatcaat 1693
 taaaaagaaa attcagagtt gctactgaat cattttctaa aacatcgaca tgaaaattaa 1753
 taactcttta ttgttattag attcgatgta agatatatgt acatactcat aggtaaaaaa 1813
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 aa 1875

<210> 1902

<211> 530

<212> PRT

<213> Ctenocephalides felis

<400> 1902

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 20 25 30

Asn Tyr Leu Leu Leu Val Val Ser Gly Cys Val Leu Val Cys Val Leu
 35 40 45

Met Glu Thr Leu Gly Met Ser Phe Val Val Pro Ser Ala Gln Cys Asp
 50 55 60

Leu Glu Leu Thr Thr Lys Gln Lys Gly Ile Leu Ser Ala Ile Ala Phe
 65 70 75 80

Ile Gly Ile Ile Ser Ser Ser His Leu Trp Gly Phe Leu Ala Asp Thr
 85 90 95

Arg Gly Arg Arg Lys Val Ile Met Pro Thr Leu Leu Leu Ala Phe Phe
 100 105 110

Cys Thr Leu Ala Ser Ser Phe Val Asn Ser Val Trp Leu Phe Ile Leu
 115 120 125

Leu Arg Tyr Phe Asn Gly Phe Phe Val Ser Gly Gly Ser Ala Thr Ile
 130 135 140

Tyr Ala Tyr Leu Gly Glu Phe His Asn Pro Arg His Arg Ser Arg Ala

145 150 155 160
 Ile Met Gly Ala Ser Ser Ile Phe Gly Phe Ala Cys Leu Ala Leu Pro
 165 170 175
 Thr Val Ala Trp Leu Ile Ile Asn Gln Lys Trp Ser Phe Tyr Ile Asp
 180 185 190
 Phe Leu Gly Tyr Thr Tyr Lys Pro Trp Arg Leu Tyr Met Val Ala Cys
 195 200 205
 Gly Leu Pro Ser Leu Leu Cys Cys Phe Ala Leu Trp Lys Leu Pro Glu
 210 215 220
 Ser Pro Lys Phe Leu Met Asn Gln Gly Arg Asn Glu Glu Ala Arg Gln
 225 230 235 240
 Ile Ile Ala Lys Met Tyr Arg Ile Asn Thr Gly Lys Pro Glu Ser Glu
 245 250 255
 Phe Pro Val Ser Ser Ile Leu Asp Glu Tyr Pro Gly Val Asp Gly Glu
 260 265 270
 Asn Thr Asn Lys Thr Lys Lys Ser Phe Leu Arg Thr Val Trp Asp Gln
 275 280 285
 Thr Ala Pro Leu Phe Met Gly Glu His Met Lys Lys Thr Leu Ile Ala
 290 295 300
 Cys Thr Leu Gln Phe Gly Ile Phe Ala Thr Ser Asn Gly Met Tyr Met
 305 310 315 320
 Trp Phe Pro Asp Ile Ile Ser Lys Met Thr Glu Phe Gln Asn Ala His
 325 330 335
 Pro Gly Val Pro Ser Thr Ile Cys Tyr Val Val Gln Asn Ser Ser Met
 340 345 350
 Leu Arg Ala Asp Asp Phe Ile Asp Thr Thr Asn Ser Thr Thr Glu Cys
 355 360 365
 Lys Asp Thr Met Glu Glu Gln Ala Phe Met His Ser Leu Met Leu Glu
 370 375 380
 Ala Gly Tyr Ala Ile Gly Phe Pro Ile Ile Gly Ala Ile Ile Asn Ser
 385 390 395 400
 Val Gly Lys Leu Pro Ile Leu Val Phe Val Met Val Ser Cys Gly Ile

405 410 415
 Cys Gly Ile Ile Cys Ala Phe Ile Glu His Leu Thr Ile Ala Ser Tyr
 420 425 430
 Leu Tyr Leu Trp Leu Leu Val Cys Gly Ile Ala Val Thr Val Val Asn
 435 440 445
 Ala Ala Leu Val Asp Leu Tyr Pro Thr Gln Leu Arg Ala Met Ala Val
 450 455 460
 Cys Ile Ser Leu Met Met Gly Arg Leu Gly Ser Val Val Gly Ser Asn
 465 470 475 480
 Val Val Gly Ile Ile Leu Asp Tyr Asn Cys Asp Leu Thr Phe Leu Ile
 485 490 495
 Ser Gly Thr Ser Leu Ile Ala Cys Gly Val Ile Ala Phe Phe Ile Pro
 500 505 510
 Asn Ile Tyr Gln Lys Gln Val Asp Arg Arg Thr Ser Ile Ala Ser Tyr
 515 520 525
 Gly Pro
 530

<210> 1903

<211> 1875

<212> DNA

<213> Ctenocephalides felis

<400> 1903

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tattaatttt catgtcgatg ttttagaaaa tgattcagta gcaactctga attttctttg 180
taattgataa tacttttctca aagtataatt gcatttcaca acacacgacg gaaatatggt 240
tatggtccat atgaagcaat gctcgttctt ctatccactt gcttctgata aatgttcggt 300
ataaagaatg caatcactcc acatgctatc agagatgttc ctgatattaa aaatgttaaa 360
tcgcaattat aatctagaat tattcctaca acattgcttc caacaacact tcctaatacga 420
cccatcatta aagatataca tactgccatt gccctgagtt gtgtagggta cagatctact 480
aatgccgcgt ttaccactgt cacagcaatt ccgcaaacca gcaaccacaa atataaatat 540
gatgctattg ttaaattgttc aataaatgca caaattattc cacaaatccc gcatgagacc 600
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<210> 1904

<211> 1590

<212> DNA

<213> *Ctenocephalides felis*

<400> 1904

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<210> 1905

<211> 1590

<212> DNA

<213> Ctenocephalides felis

<400> 1905

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<210> 1906

<211> 381

<212> DNA

<213> Ctenocephalides felis

<400> 1906

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<210> 1907

<211> 381

<212> DNA

<213> *Ctenocephalides felis*

<400> 1907

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<210> 1908

<211> 2191

<212> DNA

<213> *Ctenocephalides felis*

<400> 1908

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<210> 1909

<211> 2191

<212> DNA

<213> Ctenocephalides felis

<400> 1909

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<210> 1910

<211> 1968

<212> DNA

<213> Ctenocephalides felis

<400> 1910

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<210> 1911

<211> 1968

<212> DNA

<213> *Ctenocephalides felis*

<400> 1911

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<210> 1912

<211> 673

<212> DNA

<213> Ctenocephalides felis

<400> 1912

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<210> 1913

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<212> DNA

<213> Ctenocephalides felis

<400> 1913

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<213> Ctenocephalides felis

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<222> (168)..(2720)

<400> 1914

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 Met Glu Lys
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 Tyr Pro Leu Lys Gly Asn Ser Thr Ile Arg Leu Ser Gly Pro Ala Ser
 5 10 15

tat caa tcg gtt act aaa aaa aaa cgc cca gga gac tcc act aat cac 272
 Tyr Gln Ser Val Thr Lys Lys Lys Arg Pro Gly Asp Ser Thr Asn His
 20 25 30 35

ata gtg gaa cga gtg gat cat cct ttg agc ggc acg atg ccc tcg gac 320
 Ile Val Glu Arg Val Asp His Pro Leu Ser Gly Thr Met Pro Ser Asp
 40 45 50

gga ccc caa cag cat aat cca gtg tcg gac tcg ggc gat ttt tcg cca 368
 Gly Pro Gln Gln His Asn Pro Val Ser Asp Ser Gly Asp Phe Ser Pro
 55 60 65

gac gaa ttc ggc aaa cgt ata ttt cct ccc gga tcc aca cag ttg acc 416
 Asp Glu Phe Gly Lys Arg Ile Phe Pro Pro Gly Ser Thr Gln Leu Thr
 70 75 80

ctg gat gat gat aat gga tca gca aat ttg gca att aaa ttt gag ggt 464
 Leu Asp Asp Asp Asn Gly Ser Ala Asn Leu Ala Ile Lys Phe Glu Gly
 85 90 95

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 Leu Ser Ser Gly Gly Ile Ser Phe Ala Gly Met Gln Ala Glu Ser Asp
 100 105 110 115

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 Asp Ile Pro Gly Ile Gly Gln Tyr Asp Asp Phe His Thr Ile Asp Trp
 120 125 130

caa cgt gat ata gcc aga gat cga atg aga cat cga tat att gtt aaa 608
 Gln Arg Asp Ile Ala Arg Asp Arg Met Arg His Arg Tyr Ile Val Lys

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Lys Arg Gln Asp Ser Ile Leu Asp Leu Ile Lys Gly Ala His Asp Ala			
150	155	160	
tgg tca ggt tgg gtg tgt gtt ctc cta gtc ggg ctg gtg aca gga gct			704
Trp Ser Gly Trp Val Cys Val Leu Leu Val Gly Leu Val Thr Gly Ala			
165	170	175	
att gca ggc gtc ata gat atc gga gca agt tgg atg acg gat tta aag			752
Ile Ala Gly Val Ile Asp Ile Gly Ala Ser Trp Met Thr Asp Leu Lys			
180	185	190	195
aac ggt gtt tgc cca caa gca ttc tgg ttg aat aga gaa caa tgt tgt			800
Asn Gly Val Cys Pro Gln Ala Phe Trp Leu Asn Arg Glu Gln Cys Cys			
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Trp Ser Leu Asn Glu Thr Thr Phe Asp Asp Gly Asn Cys Ser Gln Trp			
215	220	225	
ctg act tgg cct gag gtt ttc gga caa cct aga act ggg gcg ggg gct			896
Leu Thr Trp Pro Glu Val Phe Gly Gln Pro Arg Thr Gly Ala Gly Ala			
230	235	240	
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Tyr Ile Ile Ala Tyr Leu Phe Tyr Ile Ile Trp Ala Leu Ile Phe Ala			
245	250	255	
tct ttg gca gcc tct ttg gtg cgc atg ttt gca cct tat gct tgt ggg			992
Ser Leu Ala Ala Ser Leu Val Arg Met Phe Ala Pro Tyr Ala Cys Gly			
260	265	270	275
tca ggt ata cca gag att aaa acc att ctg agt ggt ttc atc atc aga			1040
Ser Gly Ile Pro Glu Ile Lys Thr Ile Leu Ser Gly Phe Ile Ile Arg			
280	285	290	
gga tat ctt gga aaa tgg aca ttg att att aaa agt gta gga atc atg			1088
Gly Tyr Leu Gly Lys Trp Thr Leu Ile Ile Lys Ser Val Gly Ile Met			
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ttg tct gta tca gct gga ttg agt ttg ggt aaa gaa ggt cct atg gta			1136
Leu Ser Val Ser Ala Gly Leu Ser Leu Gly Lys Glu Gly Pro Met Val			
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cac att gcc agc tgt ata ggt aat ata ttg tct tat tta ttt cct aaa			1184
His Ile Ala Ser Cys Ile Gly Asn Ile Leu Ser Tyr Leu Phe Pro Lys			

325	330	335	
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Tyr Gly Arg Asn Glu Ala Lys Lys Arg Glu Ile Leu Ser Ala Ala Ala			
340	345	350	355
gca gct ggt gta tct gtt gca ttt gga gca cct att gga ggt gtg ctt			1280
Ala Ala Gly Val Ser Val Ala Phe Gly Ala Pro Ile Gly Gly Val Leu			
360	365	370	
ttc agt ttg gaa gag gtg agc tac tat ttc cca ttg aag acc tta tgg			1328
Phe Ser Leu Glu Glu Val Ser Tyr Tyr Phe Pro Leu Lys Thr Leu Trp			
375	380	385	
aga tca ttc ttc tgt gct ttg ata gca gct ttc ata ttg cga tcc ata			1376
Arg Ser Phe Phe Cys Ala Leu Ile Ala Ala Phe Ile Leu Arg Ser Ile			
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Asn Pro Phe Gly Asn Glu His Ser Val Leu Phe Tyr Val Glu Tyr Asn			
405	410	415	
aaa cct tgg ata ttt ttt gaa ctg ata cct ttc ata ggc ctt gga ata			1472
Lys Pro Trp Ile Phe Phe Glu Leu Ile Pro Phe Ile Gly Leu Gly Ile			
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Ile Gly Gly Val Val Ala Thr Leu Phe Ile Lys Ala Asn Leu Tyr Trp			
440	445	450	
tgt cgc tac cgt aaa ttt tct aaa cta gga cag tac ccc gtt gca gaa			1568
Cys Arg Tyr Arg Lys Phe Ser Lys Leu Gly Gln Tyr Pro Val Ala Glu			
455	460	465	
gtt tta gtt gtt gct gtt gca aca gca gtg att gct tat cct aat cct			1616
Val Leu Val Val Ala Val Ala Thr Ala Val Ile Ala Tyr Pro Asn Pro			
470	475	480	
tac acc agg atg aat act agt caa ctg att tat tta cta ttc agc caa			1664
Tyr Thr Arg Met Asn Thr Ser Gln Leu Ile Tyr Leu Leu Phe Ser Gln			
485	490	495	
tgc ggg att tcc aat tct gat cct ttg tgt gat tac aat cgc aat ttc			1712
Cys Gly Ile Ser Asn Ser Asp Pro Leu Cys Asp Tyr Asn Arg Asn Phe			
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act gat gtt aaa tca gct ata gaa ata gca gca gct ggt cct ggt gtc			1760
Thr Asp Val Lys Ser Ala Ile Glu Ile Ala Ala Ala Gly Pro Gly Val			

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Pro Ser Leu Cys Leu Gly Ala Ile Met Gly Arg Ile Val Gly Ile Gly			
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gaa tgc tca act gga gac aat tgc atc aca ccg ggc ctg tat gct atg			2000
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Val Gly Ala Ala Ala Val Leu Gly Gly Val Thr Arg Met Thr Val Ser			
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Leu Val Val Ile Met Phe Glu Leu Thr Gly Gly Val Arg Tyr Ile Val			
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ccc tta atg gca gca gct atg gct tcc aaa tgg gtt ggt gat gct ttg			2144
Pro Leu Met Ala Ala Ala Met Ala Ser Lys Trp Val Gly Asp Ala Leu			
645	650	655	
ggc aga cag ggt ata tat gat gcc cat ata cag ctt aat gga tat cca			2192
Gly Arg Gln Gly Ile Tyr Asp Ala His Ile Gln Leu Asn Gly Tyr Pro			
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ttc ttg gac agt aaa gat gaa ttt gca cat aca tct tta gct gca gat			2240
Phe Leu Asp Ser Lys Asp Glu Phe Ala His Thr Ser Leu Ala Ala Asp			
680	685	690	
gtc atg caa ccc aag agg aat gaa aca tta agt gta atc act caa gac			2288
Val Met Gln Pro Lys Arg Asn Glu Thr Leu Ser Val Ile Thr Gln Asp			
695	700	705	
tcg atg act gtg gat gat gtt gaa ggt tta ctg aaa gaa act gag cac			2336
Ser Met Thr Val Asp Asp Val Glu Gly Leu Leu Lys Glu Thr Glu His			

710	715	720	
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Phe Val Leu Arg Arg Asp Leu Asn Leu Ala Ile Ala Asn Ala Arg Arg			
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Pro Thr Val Gln Ser Leu Gly Pro Pro Pro Leu Lys Leu Lys Lys Ile			
775	780	785	
tta gat atg gct cca ata aca gtg act gat caa aca cca atg gaa act			2576
Leu Asp Met Ala Pro Ile Thr Val Thr Asp Gln Thr Pro Met Glu Thr			
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His Asn Gly Arg Leu Leu Gly Val Ile Thr Lys Lys Asp Val Leu Arg			
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cat gta aaa caa atg gat aat gaa gat cct aat agt ata ctt ttt aat			2720
His Val Lys Gln Met Asp Asn Glu Asp Pro Asn Ser Ile Leu Phe Asn			
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<210> 1915

<211> 851

<212> PRT

<213> Ctenocephalides felis

<400> 1915

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Gln Leu Thr Leu Asp Asp Asp Asn Gly Ser Ala Asn Leu Ala Ile Lys
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 725 730 735

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755 760 765

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770 775 780

Lys Lys Ile Leu Asp Met Ala Pro Ile Thr Val Thr Asp Gln Thr Pro
785 790 795 800

Met Glu Thr Val Val Asp Met Phe Arg Lys Leu Gly Leu Arg Gln Thr
805 810 815

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<210> 1916

<211> 3126

<212> DNA

<213> Ctenocephalides felis

<400> 1916

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<210> 1917

<211> 2553

<212> DNA

<213> Ctenocephalides felis

<400> 1917

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<210> 1918

<211> 2553

<212> DNA

<213> Ctenocephalides felis

<400> 1918

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<210> 1919

<211> 1181

<212> DNA

<213> Ctenocephalides canis

<220>

<221> CDS

<222> (127)..(432)

<400> 1919

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ataaaa atg gtt tac gaa agt gac ttt tac acg acc cgt cgg ccc tac 168
 Met Val Tyr Glu Ser Asp Phe Tyr Thr Thr Arg Arg Pro Tyr
 1 5 10

agt cgt ccg gct ttg tct tca tac tcc gta acg acg ccg tcc cgt cat 216
 Ser Arg Pro Ala Leu Ser Ser Tyr Ser Val Thr Thr Pro Ser Arg His
 15 20 25 30

tac gtg gtg act gac act cca tct aga cca agg gta gcg gaa gag caa 264
 Tyr Val Val Thr Asp Thr Pro Ser Arg Pro Arg Val Ala Glu Glu Gln
 35 40 45

tat tct tac tcc tac cgc agc cag cag gaa aga tct tct gca gat ccc 312
 Tyr Ser Tyr Ser Tyr Arg Ser Gln Gln Glu Arg Ser Ser Ala Asp Pro
 50 55 60

tac ggc agg aac tat tcg aca acc tcc acc acc gaa agc aca aga cgt 360
 Tyr Gly Arg Asn Tyr Ser Thr Thr Ser Thr Thr Glu Ser Thr Arg Arg
 65 70 75

gca ggg ggt tat cca gga tct gac tat tct tac acg agc gaa cgc tca 408
 Ala Gly Gly Tyr Pro Gly Ser Asp Tyr Ser Tyr Thr Ser Glu Arg Ser
 80 85 90

tcc aag aac tgg aga tgg acc agg tagttacaga tccagctata gctccactac 462
 Ser Lys Asn Trp Arg Trp Thr Arg
 95 100

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<210> 1920

<211> 102

<212> PRT

<213> Ctenocephalides canis

<400> 1920

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			20						25					30	
Val	Thr	Asp	Thr	Pro	Ser	Arg	Pro	Arg	Val	Ala	Glu	Glu	Gln	Tyr	Ser
		35					40					45			
Tyr	Ser	Tyr	Arg	Ser	Gln	Gln	Glu	Arg	Ser	Ser	Ala	Asp	Pro	Tyr	Gly
	50					55					60				
Arg	Asn	Tyr	Ser	Thr	Thr	Ser	Thr	Thr	Glu	Ser	Thr	Arg	Arg	Ala	Gly
	65					70				75				80	
Gly	Tyr	Pro	Gly	Ser	Asp	Tyr	Ser	Tyr	Thr	Ser	Glu	Arg	Ser	Ser	Lys
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Asn	Trp	Arg	Trp	Thr	Arg										
				100											

<210> 1921

<211> 1181

<212> DNA

<213> Ctenocephalides felis

<400> 1921

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accattacgt attttgtttc aacaaaaaatt aaaacaaatt gtaaaacttat atcacaagaa 240
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gaataaatta ataaatttca aaatacttca acaatatttt acactccgta cactgtgata 1140
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<210> 1922

<211> 306

<212> DNA

<213> Ctenocephalides felis

<400> 1922

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gatecctacg gcaggaacta ttcgacaacc tccaccaccg aaagcacaag acgtgcaggg 240
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<210> 1923

<211> 306

<212> DNA

<213> Ctenocephalides felis

<400> 1923

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gggatctgca gaagatcttt cctgctggct gcggtaggag taagaatatt gctcttccgc 180
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<210> 1924

<211> 2161

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (107)..(907)

<400> 1924

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 Met Thr Phe
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gga att tca gta att ctg tta gtg tct att tgg aca aca aat act cat 163
 Gly Ile Ser Val Ile Leu Leu Val Ser Ile Trp Thr Thr Asn Thr His
 5 10 15

gca tat tta aca tca gtg caa gaa tta gac gat gcc ata aga gca gtg 211
 Ala Tyr Leu Thr Ser Val Gln Glu Leu Asp Asp Ala Ile Arg Ala Val
 20 25 30 35

gtg tca cgg atg cat cga gta gcc gat att gaa agt ggt ggc gaa tac 259
 Val Ser Arg Met His Arg Val Ala Asp Ile Glu Ser Gly Gly Glu Tyr
 40 45 50

tca gat ctg gga gta gac ttc cca gta ccc gca att cca cga tct caa 307
 Ser Asp Leu Gly Val Asp Phe Pro Val Pro Ala Ile Pro Arg Ser Gln
 55 60 65

aaa gct cta gaa tcg gat tcg gaa tat gat tcc ata ttc gat gaa ggc 355
 Lys Ala Leu Glu Ser Asp Ser Glu Tyr Asp Ser Ile Phe Asp Glu Gly
 70 75 80

cag tta cat cct agc ctc aga gat cag gaa tat ctc cag cat agt cct 403
 Gln Leu His Pro Ser Leu Arg Asp Gln Glu Tyr Leu Gln His Ser Pro
 85 90 95

cta tgg ggt cag cag tac gta agt gga ggc gct ggt gaa ggc caa caa 451
 Leu Trp Gly Gln Gln Tyr Val Ser Gly Gly Ala Gly Glu Gly Gln Gln

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agg ctc aaa cca gat gga agt gca atg aat cat cag caa gta aaa acg				499
Arg Leu Lys Pro Asp Gly Ser Ala Met Asn His Gln Gln Val Lys Thr				
120	125	130		
gat aat ctg ccc gct tat tgt aat cca cct aat ccc tgt cct gtt gga				547
Asp Asn Leu Pro Ala Tyr Cys Asn Pro Pro Asn Pro Cys Pro Val Gly				
135	140	145		
tta aca gaa gag cat ggt tgc acc gag aac ttc gag aac acc gca gcc				595
Leu Thr Glu Glu His Gly Cys Thr Glu Asn Phe Glu Asn Thr Ala Ala				
150	155	160		
ttc agc cgc gac tac cag gcg gct cag caa tgc atg tgc gac ggt gag				643
Phe Ser Arg Asp Tyr Gln Ala Ala Gln Gln Cys Met Cys Asp Gly Glu				
165	170	175		
cat atg ttc cgt tgt ccg tcc tca tta gac gga gac gaa ctg gac gac				691
His Met Phe Arg Cys Pro Ser Ser Leu Asp Gly Asp Glu Leu Asp Asp				
180	185	190	195	
tca tcc gaa tca gac gaa cag gac gaa cac cag gac ctt ctg gac atg				739
Ser Ser Glu Ser Asp Glu Gln Asp Glu His Gln Asp Leu Leu Asp Met				
200	205	210		
gaa ggc gga ctt gat act cga act gcg cct gaa atc ttc atg gcg caa				787
Glu Gly Gly Leu Asp Thr Arg Thr Ala Pro Glu Ile Phe Met Ala Gln				
215	220	225		
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Arg Glu Tyr Arg Arg Ser Gly Leu Ser Gly Asn Lys His His Lys Arg				
230	235	240		
aag agt act aat ccc tac ttg cat ggt gag aaa ctc cca gtg gct gct				883
Lys Ser Thr Asn Pro Tyr Leu His Gly Glu Lys Leu Pro Val Ala Ala				
245	250	255		
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Lys Lys Gly Ile Asn Val Val Tyr				
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tatataataa tgcattgctt ttaaatttat attataatga atatataatg aatattttta 2077
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<210> 1925

<211> 267

<212> PRT

<213> Ctenocephalides felis

<400> 1925

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			20					25					30		

Arg Ala Val Val Ser Arg Met His Arg Val Ala Asp Ile Glu Ser Gly
 35 40 45

Gly Glu Tyr Ser Asp Leu Gly Val Asp Phe Pro Val Pro Ala Ile Pro
 50 55 60

Arg Ser Gln Lys Ala Leu Glu Ser Asp Ser Glu Tyr Asp Ser Ile Phe
 65 70 75 80

Asp Glu Gly Gln Leu His Pro Ser Leu Arg Asp Gln Glu Tyr Leu Gln
 85 90 95

His Ser Pro Leu Trp Gly Gln Gln Tyr Val Ser Gly Gly Ala Gly Glu
 100 105 110

Gly Gln Gln Arg Leu Lys Pro Asp Gly Ser Ala Met Asn His Gln Gln
 115 120 125

Val Lys Thr Asp Asn Leu Pro Ala Tyr Cys Asn Pro Pro Asn Pro Cys
 130 135 140

Pro Val Gly Leu Thr Glu Glu His Gly Cys Thr Glu Asn Phe Glu Asn
 145 150 155 160

Thr Ala Ala Phe Ser Arg Asp Tyr Gln Ala Ala Gln Gln Cys Met Cys
 165 170 175

Asp Gly Glu His Met Phe Arg Cys Pro Ser Ser Leu Asp Gly Asp Glu
 180 185 190

Leu Asp Asp Ser Ser Glu Ser Asp Glu Gln Asp Glu His Gln Asp Leu
 195 200 205

Leu Asp Met Glu Gly Gly Leu Asp Thr Arg Thr Ala Pro Glu Ile Phe
 210 215 220

Met Ala Gln Arg Glu Tyr Arg Arg Ser Gly Leu Ser Gly Asn Lys His
 225 230 235 240

His Lys Arg Lys Ser Thr Asn Pro Tyr Leu His Gly Glu Lys Leu Pro
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Val Ala Ala Lys Lys Gly Ile Asn Val Val Tyr
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<210> 1926

<211> 2161

<212> DNA

<213> *Ctenocephalides felis*

<400> 1926

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aactaacgcg catatatatt atatttaaaa tattcattat atattcatta taatataaat 120
ttaacaagca tgcattatta tatagatttc acatgtatgt aatatataat cttcttcata 180
attgtattta gacacatgat cgtagcatg aactgtgagt aaattattac agttcacgaa 240
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cattagtata tcattattat atatccataa tagaaatgat acgaagtgat ttgcttgata 360
aatataatta cttatatcta tgtcaaatag tgaatgcaaa tcttaaaac tacacttatt 420
tcattaaaca cgtatcgtgc actcattgcg tgtaatgtct attacaaaaa tcggataata 480
caatacatta caatggtttc ataatatatt aaattatgga aattataaat gaacattgca 540
cggatacaag agcatcaatg gggctcgaaa cacgttcacc gaaancangt gtaagtttyc 600
caatcaattc ttttctaata tgaattgttg ttaatgcaac tcttcctttt tcaaatttgt 660
ctcgggatgt aattgagact ttattaaatt tttgtgagct ttttttaatt tcgcaaatgc 720
gcgcattgat ggagactata tttgaaatcg tcttggggtg cggaaacaaac ttgcaaataa 780
ataatagaga gaaagacaat aagaaatttg atcatacccc aatcggattc caatagcatt 840
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cactgatgtt aaatatgcat gagtatttgt tgtccaaata gacactaaca gaattactga 2040
aattccgaaa gtcacgtgtt aatcgcttgc cagtggagat cactgtgtac taactccag 2100
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<210> 1927

<211> 801

<212> DNA

<213> Ctenocephalides felis

<400> 1927

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cgagtagccg atattgaaag tgggtggcgaa tactcagatc tgggagtaga cttcccagta 180
cccgcaattc cacgatctca aaaagctcta gaatcggatt cggaatatga ttccatattc 240
gatgaaggcc agttacatcc tagcctcaga gatcaggaat atctccagca tagtcctcta 300
tgggggtcagc agtacgtaag tggaggcgct ggtgaaggcc aacaaaggct caaaccagat 360
ggaagtgcaa tgaatcatca gcaagtaaaa acggataatc tgcccgttta ttgtaatcca 420
cctaatccct gtcctgttgg attaacagaa gagcatggtt gcaccgagaa cttcgagaac 480
accgcagcct tcagccgcga ctaccaggcg gctcagcaat gcatgtgcga cggtgagcat 540
atgttccgtt gtccgtcctc attagacgga gacgaactgg acgactcatc cgaatcagac 600
gaacaggacg aacaccagga ctttctggac atggaaggcg gacttgatac tcgaactgcg 660
cctgaaatct tcatggcgca aagggagtag cgacgatctg gcttgagtgg gaataaacat 720
cataaaagaa agagtactaa tccctacttg catggtgaga aactcccagt ggctgctaag 780
aagggtatca acgttgtcta c                                     801

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<210> 1928

<211> 801

<212> DNA

<213> Ctenocephalides felis

<400> 1928

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ttgcgccatg aagatttcag gcgcagttcg agtatcaagt ccgccttcca tgtccagaag 180
gtcctggtgt tcgtcctgtt cgtctgattc ggatgagtcg tccagttcgt ctccgtctaa 240
tgaggacgga caacggaaca tatgtcacc gtcgcacatg cattgctgag ccgcctggta 300
gtcgcggctg aaggctgcgg tgttctcgaa gttctcgggt caaccatgct cttctgttaa 360
tccaacagga cagggattag gtggattaca ataagcgggc agattatccg tttttacttg 420
ctgatgattc attgcacttc catctggttt gaggctttgt tggccttcac cagcgctcc 480
acttacgtac tgctgacccc atagaggact atgctggaga tattcctgat ctctgaggct 540
aggatgtaac tggccttcat cgaatatgga atcatattcc gaatccgatt ctagagcttt 600
ttgagatcgt ggaattgcgg gtactgggaa gtctactccc agatctgagt attcgccacc 660
actttcaata tcggctactc gatgcacccg tgacaccact gctcttatgg catcgtctaa 720
ttcttgact gatgttaaat atgcatgagt atttgttgtc caaatagaca ctaacagaat 780
tactgaaatt ccgaaagtca t                                     801

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<210> 1929

<211> 741

<212> DNA

<213> Ctenocephalides felis

<220>

<221> CDS

<222> (1)..(741)

<400> 1929

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Tyr Leu Thr Ser Val Gln Glu Leu Asp Asp Ala Ile Arg Ala Val Val	
1 5 10 15	
tca cgg atg cat cga gta gcc gat att gaa agt ggt ggc gaa tac tca	96
Ser Arg Met His Arg Val Ala Asp Ile Glu Ser Gly Gly Glu Tyr Ser	
20 25 30	
gat ctg gga gta gac ttc cca gta ccc gca att cca cga tct caa aaa	144
Asp Leu Gly Val Asp Phe Pro Val Pro Ala Ile Pro Arg Ser Gln Lys	
35 40 45	
gct cta gaa tcg gat tcg gaa tat gat tcc ata ttc gat gaa ggc cag	192
Ala Leu Glu Ser Asp Ser Glu Tyr Asp Ser Ile Phe Asp Glu Gly Gln	
50 55 60	
tta cat cct agc ctc aga gat cag gaa tat ctc cag cat agt cct cta	240
Leu His Pro Ser Leu Arg Asp Gln Glu Tyr Leu Gln His Ser Pro Leu	
65 70 75 80	
tgg ggt cag cag tac gta agt gga ggc gct ggt gaa ggc caa caa agg	288
Trp Gly Gln Gln Tyr Val Ser Gly Gly Ala Gly Glu Gly Gln Gln Arg	
85 90 95	
ctc aaa cca gat gga agt gca atg aat cat cag caa gta aaa acg gat	336
Leu Lys Pro Asp Gly Ser Ala Met Asn His Gln Gln Val Lys Thr Asp	
100 105 110	
aat ctg ccc gct tat tgt aat cca cct aat ccc tgt cct gtt gga tta	384
Asn Leu Pro Ala Tyr Cys Asn Pro Pro Asn Pro Cys Pro Val Gly Leu	
115 120 125	
aca gaa gag cat ggt tgc acc gag aac ttc gag aac acc gca gcc ttc	432
Thr Glu Glu His Gly Cys Thr Glu Asn Phe Glu Asn Thr Ala Ala Phe	
130 135 140	
agc cgc gac tac cag gcg gct cag caa tgc atg tgc gac ggt gag cat	480
Ser Arg Asp Tyr Gln Ala Ala Gln Gln Cys Met Cys Asp Gly Glu His	
145 150 155 160	
atg ttc cgt tgt ccg tcc tca tta gac gga gac gaa ctg gac gac tca	528
Met Phe Arg Cys Pro Ser Ser Leu Asp Gly Asp Glu Leu Asp Asp Ser	
165 170 175	
tcc gaa tca gac gaa cag gac gaa cac cag gac ctt ctg gac atg gaa	576

Ser Glu Ser Asp Glu Gln Asp Glu His Gln Asp Leu Leu Asp Met Glu
 180 185 190

ggc gga ctt gat act cga act gcg cct gaa atc ttc atg gcg caa agg 624
 Gly Gly Leu Asp Thr Arg Thr Ala Pro Glu Ile Phe Met Ala Gln Arg
 195 200 205

gag tac cga cga tct ggc ttg agt ggg aat aaa cat cat aaa aga aag 672
 Glu Tyr Arg Arg Ser Gly Leu Ser Gly Asn Lys His His Lys Arg Lys
 210 215 220

agt act aat ccc tac ttg cat ggt gag aaa ctc cca gtg gct gct aag 720
 Ser Thr Asn Pro Tyr Leu His Gly Glu Lys Leu Pro Val Ala Ala Lys
 225 230 235 240

aag ggt atc aac gtt gtc tac 741
 Lys Gly Ile Asn Val Val Tyr
 245

<210> 1930

<211> 247

<212> PRT

<213> Ctenocephalides felis

<400> 1930

Tyr Leu Thr Ser Val Gln Glu Leu Asp Asp Ala Ile Arg Ala Val Val
 1 5 10 15

Ser Arg Met His Arg Val Ala Asp Ile Glu Ser Gly Gly Glu Tyr Ser
 20 25 30

Asp Leu Gly Val Asp Phe Pro Val Pro Ala Ile Pro Arg Ser Gln Lys
 35 40 45

Ala Leu Glu Ser Asp Ser Glu Tyr Asp Ser Ile Phe Asp Glu Gly Gln
 50 55 60

Leu His Pro Ser Leu Arg Asp Gln Glu Tyr Leu Gln His Ser Pro Leu
 65 70 75 80

Trp Gly Gln Gln Tyr Val Ser Gly Gly Ala Gly Glu Gly Gln Gln Arg
 85 90 95

Leu Lys Pro Asp Gly Ser Ala Met Asn His Gln Gln Val Lys Thr Asp
 100 105 110

Asn Leu Pro Ala Tyr Cys Asn Pro Pro Asn Pro Cys Pro Val Gly Leu

115	120	125
Thr Glu Glu His Gly Cys Thr Glu Asn Phe Glu Asn Thr Ala Ala Phe		
130	135	140
Ser Arg Asp Tyr Gln Ala Ala Gln Gln Cys Met Cys Asp Gly Glu His		
145	150	155
Met Phe Arg Cys Pro Ser Ser Leu Asp Gly Asp Glu Leu Asp Asp Ser		
	165	170
Ser Glu Ser Asp Glu Gln Asp Glu His Gln Asp Leu Leu Asp Met Glu		
	180	185
Gly Gly Leu Asp Thr Arg Thr Ala Pro Glu Ile Phe Met Ala Gln Arg		
	195	200
Glu Tyr Arg Arg Ser Gly Leu Ser Gly Asn Lys His His Lys Arg Lys		
	210	215
Ser Thr Asn Pro Tyr Leu His Gly Glu Lys Leu Pro Val Ala Ala Lys		
	225	230
Lys Gly Ile Asn Val Val Tyr		
	245	

<210> 1931

<211> 741

<212> DNA

<213> Ctenocephalides felis

<400> 1931

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gtagacaacg ttgataccct tcttagcagc cactgggagt ttctcaccat gcaagtaggg 60
attagtactc tttcttttat gatgtttatt cccactcaag ccagatcgtc ggtactccct 120
ttgcgccatg aagatttcag gcgcagttcg agtatcaagt ccgccttcca tgtccagaag 180
gtcctggtgt tcgtcctggt cgtctgattc ggatgagtcg tccagttcgt ctccgtctaa 240
tgaggacgga caacggaaca tatgctcacc gtcgcacatg cattgctgag ccgcctggta 300
gtcgcggctg aaggctgcgg tgttctcgaa gttctcgggtg caaccatgct cttctgttaa 360
tccaacagga cagggattag gtggattaca ataagcgggc agattatccg tttttacttg 420
ctgatgattc attgcacttc catctggttt gagcctttgt tggccttcac cagcgcctcc 480
acttacgtac tgctgacccc atagaggact atgctggaga tattcctgat ctctgaggct 540
aggatgtaac tggccttcat cgaatatgga atcatattcc gaatccgatt ctagagcttt 600
ttgagatcgt ggaattgcgg gtactgggaa gtctactccc agatctgagt attcgccacc 660
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ttcttgcaat gatgttaaat a 741

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<210> 1932
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1932
gcgatactgg tggactggt gaag

24

<210> 1933
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1933
ccatcctaatac gactcact atagggc

27

<210> 1934
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1934
gaggtggttg tcttcagtgg ttg

23

<210> 1935
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1935
actcactata gggctcgagc ggc

23

<210> 1936
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1936
caatttttaa cgcatccacg accg

24

<210> 1937
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1937
ccgctcgagc gaccatttc acgacttatt tgaatcg

37

<210> 1938
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1938
ggaattctaa aatgcacaac aaaatcctgg tcctgg

36

<210> 1939
<211> 40
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1939

gactagtaaa atgggcgtta aaaatatata ttatatactgc

40

<210> 1940

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1940

ccgctcgagg tactgcacgt actaacgtca tc

32

<210> 1941

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1941

gtctggaagc tcaggaagag g

21

<210> 1942

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1942

gtaatatgcg tgacaatcgt gtgg

24

<210> 1943
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1943
cggtgcaagt tatagaacct tccg

24

<210> 1944
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1944
cgggatcccg aatatgctga cgtagatgtg tg

32

<210> 1945
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1945
ggaattctgt ttattctggt ttgtaacat tc

32

<210> 1946
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1946
gatatccact ttgatcagcg cac

23

<210> 1947
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1947
ggtactactc ctggtgcggg c

21

<210> 1948
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1948
ccgtcgacat taaactcacc atc

23

<210> 1949
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1949
cgatcatgcg tctagcattg gc

22

<210> 1950
<211> 23
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1950

cccgccccag ttctaggttg tcc

23

<210> 1951

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1951

cacaccaac ctgaccaggc

20

<210> 1952

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1952

atggatccgg caaaatatac caaagaagaa g

31

<210> 1953

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1953

atgaattctt atattggtat cgcgtccatt

30

<210> 1954

<211> 24
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1954
agtcgcatag tgcacttctg aatg

24

<210> 1955
<211> 22
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1955
ctgacatctg tttccacagc tc

22

<210> 1956
<211> 24
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1956
aatagtgatg ttgtaagagt tagg

24

<210> 1957
<211> 29
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1957

gtttaatatt gcatgtttat tcattaata

29

<210> 1958

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1958

gcgccatgaa gatttcaggc g

21

<210> 1959

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 1959

aagtgcaatg aatcatcagc aag

23